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The influence of family and friends’ basic conditioning factors, and self-care agency on unmarried teenage primiparas’ engagement in contraceptive practice

Mapanga, Kudakwashe Godwill, Ph.D.

Case Western Reserve University (Health Sciences), 1994
THE INFLUENCE OF FAMILY AND FRIENDS’ 
BASIC CONDITIONING FACTORS, AND SELF-CARE AGENCY 
ON UNMARRIED TEENAGE PRIMIPARAS’ ENGAGEMENT 
IN CONTRACEPTIVE PRACTICE 

by 

KUDAKWASHE GODWILL MAPANGA

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

Dissertation Advisor: Claire M Andrews, PhD

Department of Nursing
CASE WESTERN RESERVE UNIVERSITY
August, 1994
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We hereby approve the thesis of

Kudakwashe G. Mapanga

candidate for the Doctor of Philosophy
degree.*

(signed) [Signature]
(chair)

[Signature]
Claudia Cozma

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THE INFLUENCE OF FAMILY AND FRIENDS’ BASIC CONDITIONING FACTORS AND SELF-CARE AGENCY ON UNMARRIED TEENAGE PRIMIPARAS’ ENGAGEMENT IN CONTRACEPTIVE PRACTICE

Abstract

by

KUDAKWASHE GODWILL MAPANGA

The main focus of community health nursing is promotion of health of individuals, families, subgroups and communities. One of the major objectives of community health nursing to facilitate engagement in contraceptive practice to prevent repeated pregnancies among unmarried teenage primiparas. Studies document association of prematurity, low birth weight, perinatal mortality, infant mortality, and child abuse with repeated pregnancies in that subgroup. Evidence indicates that unmarried teenage primiparas do not engage in contraceptive practice leading to repeated pregnancies within a year or two.

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There is lack, and inconsistency of information about factors that explain unmarried teenage primiparas’ engagement in contraceptive practice. A health promotion model derived from Orem’s self-care deficit theory suggests important concepts, and potential linkages of factors that may influence the unmarried teenage primiparas’ engagement in contraceptive practice. The self-care deficit theory states that basic conditioning factors influence self-care agency, and self-care, and that self-care agency is necessary for self-care. The purpose of this study was to determine the relationship among emotional support from family and friends’ basic conditioning factors, self-care agency, and engagement in contraceptive practice.

A cross-sectional survey design using a random sample of 75 unmarried primiparas 18 years and younger was used to examine the factors that might influence engagement in contraceptive practice. Instruments were: Perceived Social Support from Family scale (Procidano & Heller, 1983); Perceived Social Support from Friends scale (Procidano & Heller, 1983); Exercise of Self-care Agency scale (Kearney & Fleischer, 1979); Contraceptive Practice Questionnaire developed by the investigator, and based on previous studies (Galavotti, 1987; Galavotti & Lovick, 1989).

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Using multiple regression analysis, both emotional support from family, and emotional support from friends had direct positive effect on self-care agency. Using logistic regression analysis, emotional support from family, emotional support from friends, and self-care agency did not have a significant effect on engagement in contraceptive practice. The results suggest that community health nurses should consider the influence of family and friends on self-care agency but have to be cautious with regards to the influence of family, friends, and self-care agency on engagement in contraceptive practice. The results partially supported Orem’s model.
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CHAPTER 1

BACKGROUND AND ORGANIZING FRAMEWORK

Problem Statement

The main focus of community health nursing is promotion of health of individuals, families, subgroups and communities (Spradley, 1990). One of the major objectives of community health nursing in promoting health is to facilitate engagement in contraceptive practice to prevent repeated pregnancies among unmarried primiparas in their teenage years.

The major national health care burdens are teenage pregnancy, low birth weight and infant mortality (Davidson, Gibbs & Chapin, 1991). Studies document association of prematurity and perinatal mortality (Institute of Medicine, 1985), low birth weight and infant mortality (Davis, 1988) with repeated pregnancies in teenagers. Child maltreatment is also associated with repeated pregnancies in teenagers (Bolton, Laner & Kane, 1980). Maternal psychosocial problems pertaining to educational attainment, economic well-being and reliance on social services are also intensified (Polit & Khan, 1986; Furstenberg, Brooks-Gunn & Morgan, 1987).

Unmarried teenage primiparas do not engage in contraceptive practice and this leads to repeated pregnancies within a year or two. Fifteen percent of 1
unmarried teenage primiparas have repeated pregnancies within a year and 30% within two years (Davis, 1988). Recent findings (Adams, McAnarney, Panzarine & Tuttle, 1990) suggest that as many as 53% of unmarried teenage primiparas have repeated pregnancies within two years.

There is lack and inconsistency of information about factors that explain unmarried teenage primiparas’ engagement in contraceptive practice. This cross-sectional study addresses unmarried teenage primiparas’ failure to engage in contraceptive practice, following birth, leading to repeated pregnancies. A health promotion model derived from Orem (1985, 1991) self-care deficit theory suggests important concepts and potential linkages of factors that may influence the unmarried primiparas’ engagement in contraceptive practice. The self-care deficit theory propositions suggest that basic conditioning factors influence self-care agency and self-care and that self-care agency is necessary for self-care (Orem, 1991). Self-care reflects contraceptive practice that is activities unmarried teenage primiparas initiate and carry out on their own behalf to control birth and thereby prevent repeated pregnancies.

Purpose

The purpose of this study is to determine the influence of two social factors as basic conditioning
factors and self-care agency on unmarried teenage primiparas’ engagement in contraceptive practice. The two social factors which are basic conditioning factors are emotional support from family and emotional support from friends. This study proposes that the basic conditioning factors, emotional support from family and emotional support from friends will enhance self-care agency and unmarried teenage primiparas’ engagement in contraceptive practice and that self-care agency will also enhance contraceptive practice. A conceptual framework is proposed to provide the basis for a health promotion model for contraceptive practice for unmarried teenage primiparas.

Theoretical Framework

Orem’s (1971, 1980, 1985, 1991) self-care deficit theory provides a framework for examination of the unmarried teenage primiparas’ engagement in contraceptive practice. In particular an understanding of basic conditioning factors, and self-care agency may provide insight into the reasons why unmarried teenage primiparas engage or do not engage in contraceptive practice.

Self-care Deficit Theory

Within the context of Orem’s (1971, 1980, 1985, 1991) self-care deficit theory, unmarried teenage primiparas’ status is a developmental state in which
failure to engage in contraceptive practice suggests lack of self-care agency necessary for self-care. An unmarried teenage primipara is the self-care agent for herself and that also involves engagement in contraceptive practice. Self-care actions are "...activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (Orem, 1991, p. 117). In relation to unmarried teenage primiparas self-care activities include contraceptive practice, that is activities they initiate and carry out on their own behalf to prevent repeated pregnancies. Contraceptive practice activities include abstinence or regular use of birth control methods and that is the self-care that unmarried teenage primiparas need to engage to prevent repeated pregnancies. Engagement in contraceptive practice activities involve factors of decision making, motivation and acquisition of knowledge which are an integral part of an individual’s development.

**Self-care Agency**

Orem (1991) self-care deficit theory states that "...self-care agency is necessary for self-care" (p. 143). Self-care agency is "the complex acquired ability to meet one’s continuing requirements for care that regulates life processes, maintains and promotes well-being" (Orem, 1991 p.145). Self-care agency is further
defined by Orem (1991) as "the ability for engaging in self-care" activities and "develops in the course of day to day living" (p.146). In an unmarried teenage primipara’s situation, self-care agency reflects the factors of social support, knowledge, motivation and decision making that may influence her engagement in contraceptive practice. Orem (1991) defines self-care "as an experienced demand to attend to one self" (p.124). Engagement in contraceptive practice prevents repeated pregnancies associated with negative effects for both the mother and subsequent infant in unmarried teenage primiparas. Unmarried teenage primiparas’ situation is an experience that is expected to create the demand to engage in contraceptive practice but self-care agency is necessary for that to be realized.

Orem (1991) further states that "powers of persons to engage in particular kinds of goal-achieving action is referred to as agency" (p.145). Self-care agency, according to Orem (1991) is a human ability for engaging in self-care and develops spontaneously in the course of day to day activities of daily life. Listed are propositions of self-care agency (Orem, 1991, p.148), unmarried teenage primiparas require to enable them to engage in contraceptive practice.

1. Self-care agency is a complex, acquired human
characteristic or quality.

2. Self-care agency is the power of an individual to engage in the operations essential for self-care.

3. The exercise by an individual of the power that is named self-care agency results in a system of actions directed to reality conditions in self or environment in order to regulate them; or its exercise results in a design and plan for such system of action.

4. Self-care agency is an estimative capability and a productive capability for self-care.

5. Persons are subject to time sequential needs for the exercise of self-care agency.

6. Conditions and factors in the environment of an individual affect the development of and exercise of self-care agency.


Self-care agency has power components described as capabilities to engage in self-care operations (Orem, 1991). Listed are power components of self-care agency (Orem, 1991, p.155), that is, the nature of capabilities essential for unmarried teenage primiparas engagement in contraceptive practice.

1. Ability to reason within self-care frame of reference.

2. Motivation (i.e., goal orientations for self-care that are in accord with its characteristics and its meaning for life, health, and well-being.

3. Ability to make decisions about care of self and to operationalize these decisions.

4. Ability to acquire technical knowledge about self-care from authoritative sources, to retain it, and to operationalize it.
5. Ability to order discrete self-care actions or action systems into relationships with prior and subsequent actions toward the final achievement of regulatory goals of self-care.

Self-care agency reflects factors of reasoning, motivation, decision making, acquisition of knowledge and planned actions that enhance unmarried teenage primiparas engagement in contraceptive practice. However, the development of self-care agency, that is the stated power components, is influenced by basic conditioning factors (Orem, 1991).

**Basic Conditioning Factors**

According to Orem (1991) "conditions and factors in the environment of an individual affect the development of and exercise of self-care agency necessary for self-care" (p. 143). In relation to Orem (1985,) self-care deficit theory "The individual’s ability to engage in self-care or dependent care are conditioned by age, developmental state, life experiences, sociocultural orientation, health and available resources" (p. 35). Both stated life experiences and sociocultural orientation reflect social environment that is dominated by the family and friends in the case of unmarried teenage primiparas. Orem (1991) basic conditioning factors include family and environment that influence self-care agency and self-care. Listed are self-care
propositions (Orem 1991, p.120) which relate to families and friends as basic conditioning factors.

1. Self-care conduct is affected by placement in the family constellation.

2. Self-care conduct is affected by membership in social groups exclusive of family, for example, friendship and work groups.

The propositions stated above relate to self-care agency and self-care as functions of a person’s family and friends social environment. The family and friends are the main source of social support and in particular emotional support. Social support is defined as positive, nurturing and encouraging interactions (Kane, 1988; Norberck, 1981). Emotional support is the proposed basic form of social support that unmarried primiparas’ families and friends can provide to enhance self-care agency and self-care.

Basic conditioning factors stated in the propositions include family and friends. The family and friends are important aspects of unmarried teenage primiparas’ social environment and a major source of social support. The family and friends as a major social environment and a source of emotional support for the unmarried teenage primiparas are expected to enhance development of self-care agency necessary for self-care. This study proposes that emotional support from family
and emotional support from friends, as basic conditioning factors will enhance self-care agency and unmarried teenage primiparas’ engagement in contraceptive practice and that self-care agency will also enhance contraceptive practice.

Health Promotion Model

The propositions in the stated Orem’s (1991) self-care deficit theory suggests relationships among basic conditioning factors, self-care agency and self-care that may be important for contraceptive practice. Therefore the basic conditioning factors consisting of both emotional support from friends and emotional support from friends are expected to enhance self-care agency and contraceptive practice in unmarried teenage primiparas.

This study proposes to test the influence of emotional support from family and emotional support from friends as basic conditioning factors and self-care agency on primiparas’ engagement in contraceptive practice. The conceptual framework below indicates the relationships to be tested to determine the proposed influence of basic conditioning factors and self-care agency on unmarried primiparas’ engagement in contraceptive practice. Emotional support from friends and emotional support from family, as basic conditioning factors are expected to predict self-care agency. In
addition, emotional support from friends and emotional support from family and self-care agency are expected to predict contraceptive practice. The stated concepts and linkages constitute the proposed health promotion model (Figure 1), for contraceptive practice, derived from Orem’s (1991) self-care deficit theory.

Hypotheses

The hypotheses generated from Orem’s self-care deficit theory propositions are:

1. Emotional support from family has a positive effect on self-care agency.
2. Emotional support from friends has a positive effect on self-care agency.
3. Emotional support from family and emotional support from friends have a positive effect on self-care agency.
4. Self-care agency has a positive effect on contraceptive practice.
5. Emotional support from friends has a positive effect on contraceptive practice.
6. Emotional support from family has a positive effect on contraceptive practice.
7. Emotional support from family, emotional support from friends, and self-care agency have a positive effect on contraceptive practice.
Figure 1. Orem's model modified for a health promotion model in contraceptive practice.
Significance to Nursing

A health promotion model derived from Orem’s (1991) self-care deficit theory with linkages of important concepts for contraceptive practice will provide basis for clinical practice and further research. An understanding of the factors in the proposed health promotion model will assist community health nurses in facilitating unmarried primiparas’ engagement in contraceptive practice thereby preventing repeated pregnancies and reducing related social and health problems. The importance of emotional support from friends and emotional support from friends in enhancing self-care agency and contraceptive practice may provide support for clinical decisions for approaches that may be effective in facilitating contraceptive practice among unmarried teenage primiparas. The current focus on individual unmarried teenage primiparas may be extended to include their respective families and friends in the intervention. The study may also provide direction for further research in contraceptive practice pertaining to unmarried teenage primiparas.
CHAPTER 2
LITERATURE REVIEW

The literature review addresses research pertaining to repeated pregnancies in unmarried teenage primiparas and the related social and health problems. Research pertaining to contraceptive practice models and related psychosocial variables is discussed. Finally, research pertaining to the proposed health promotion model, derived from Orem’s (1991) self-care deficit theory, with linkages of important concepts for contraceptive practice is discussed. A case is made to support the potential influence of emotional support from friends and emotional support from family and self-care agency on contraceptive practice in unmarried teenage primiparas.

Teenage Pregnancy

One in ten teenagers, aged 15 to 19, become pregnant each year and five in every six of those pregnancies are reported as unintended (Scott, 1983; Trussell, 1988) and only 6% of those pregnancies are reported as due to failure of contraceptive used (Cobliner, 1981). The birth rate among teenagers aged 15 to 17 is increasing (National Center for Health Statistics, 1990).

Repeated Pregnancies

Repeated pregnancies in unmarried teenage primiparas are increasing (National Academy of Sciences Symposium,
1987). A previously pregnant teenager has a greater likelihood of becoming pregnant again than a never pregnant counterpart becoming pregnant for the first time (Miller, 1983; Polit & Khan, 1986). The likelihood of repeated pregnancy is further increased if the first pregnancy is carried to term (Koenig & Zelnik, 1982). Therefore unmarried teenage primiparas are at risk of repeated pregnancy.

Repeated pregnancies in unmarried teenage primiparas are associated with greater health, social economic and educational consequences for the teenager (Ford, 1983; National Academy of Sciences Symposium, 1987). Repeated pregnancies in unmarried teenage primiparas are associated with higher infant mortality rates, decreased likelihood of completing high school, increased unemployment rates and welfare dependency (Ford, 1983). In spite of potential negative effects, repeated pregnancies continue to increase among unmarried teenage primiparas. Failure to engage in contraceptive practice to prevent repeated pregnancies among unmarried teenage primiparas may suggest lack of self-care agency stated in Orem’s (1991) self-care deficit theory.

Contraceptive Practice

Failure to engage in contraceptive practice is a major problem in unmarried teenage primiparas because it
leads to repeated pregnancy. In one study (Gisbert, Brinich, Wheeler & Krieger, 1984) the group difference between those unmarried teenage primiparas who became pregnant the second time in a two year period and those who did not, revealed that 58% of those who reported engaging in contraceptive practice experienced a repeat pregnancy as compared to 83% of those who did not report engaging in contraceptive practice in the same period. The findings suggest the importance of contraceptive practice in reducing the occurrence of repeated pregnancies in unmarried teenage primiparas.

**Contraceptive Practice Models**

Contraceptive practice models namely: Rosernberg’s instrumentality-value model (1956) Fishbein’s belief-evaluation model (1963), and Beach, Townes, Campbell, and Keating adaptation of subjective utility theory (1976) place importance on attitudes and behavioral plans toward using one method of contraception or another rather than the concept of self-care agency that emphasizes importance of power components including: reasoning, motivation, decision making, acquisition of knowledge and planned actions. In addition a comparison study of these three social-psychological models of attitudes and behavioral plan for prediction of contraceptive behavior indicated some discrepancies in their predictive
validities (Pagel & Davidson, 1984). Recent utilization of Fishbein’s Belief-Attitude-Intention-Behavior model that states that behavior is predicted on intention, intention is predicted on attitudes, and attitudes are predicted on beliefs was tested with respects to condom use in 18 to 20 year-old college boys (Ewald & Roberts, 1985). The results supported the model in that population. However, attitudes do not predict contraceptive use among unmarried teenage primiparas (Adams, McAnarney, Penzanie & Tuttle, 1990). The unmarried teenage primiparas situation suggest that they simply lack the desire to prevent pregnancy and just take the risk or may even want to get pregnant again.

Contraceptive Practice Psychosocial Variables

Study of 260 high school teenagers of which 90% were eligible for a free or subsidized lunch (Galavotti & Lovick, 1989) suggested that older age at first intercourse, higher number of welfare benefits received by household (including Medicaid, food stamps, and free or reduced price lunch) and use of the school-based clinic were significant positive predictors of contraceptive use. The findings suggests that economic support and knowledge enhance contraceptive use among school children who have never been pregnant. On the contrary both availability (Harris, 1986) and knowledge
(Burbach, 1980; Nadelson, Notman & Gillon, 1980) of contraceptives do not predict contraceptive use among unmarried teenage primiparas. A study of 43 unmarried teenage primiparas suggests that those with repeated pregnancies in a two year period and those without do not differ significantly in psychosocial variables such as contraceptive knowledge, attitudes to contraception and economic status (Adams, McAnarney, Penzanie & Tuttle, 1990). Therefore the findings suggest that contraceptive knowledge, attitudes to contraception and economic status are not important characteristics between those unmarried teenage primiparas without and those with repeated pregnancies.

Summary

In spite of the negative effects of repeated pregnancies, unmarried teenage primiparas fail to engage in contraceptive practice placing them at greater risk as repeated pregnancies continue to increase in that population group. Current contraceptive models do not adequately address unmarried teenage primiparas failure to engage in contraceptive practice. Contraceptive practice psychosocial variables including: economic status, attitudes, knowledge and availability of contraceptives do not predict engagement in contraceptive practice among unmarried teenage primiparas.
Application of the Health Promotion Model

A health promotion model derived from Orem (1991) self-care deficit theory suggests important concepts and linkages that may apply to engagement in contraceptive practice in unmarried teenage primiparas. Hartweg (1990) developed a health promotion self-care model derived from Orem’s (1985) self-care deficit theory. Health promotion self-care was defined as one type of self-care activity that is self-initiated and deliberately performed to increase an individuals’ well-being (Hartweg, 1990). Contraceptive practice in unmarried teenage primiparas’ situation reflects self-care activity. Nowakowski (1980) described an Orem (1971) self-care deficit theory derived health promotion self-care program intended to increase individuals’ general decision-making ability. The concept of decision-making ability reflects self-care agency necessary for self-care activity such as contraceptive practice in unmarried teenage primiparas.

Denyes (1988) identified directions from research on health promotion as a general concept derived from Orem (1985) self-care deficit theory. Using a sample of 369 teenagers aged 12 to 20 mean age 16.4 Denyes (1988) tested the relationships addressed in Orem’s 1985 theory that basic conditioning factors influence both self-care agency and self-care, and that self-care agency is
necessary for self-care. The relationship of self-care agency as the ability to engage is self-care was positively related to self-care as stated in Orem (1985) one self-care deficit theory propositions that "Persons who take action to provide their own self-care ... have specialized capabilities for action" (p.135). Self-care agency was a significant predictor of self-care (Denyes, 1988). In this study self-care agency is therefore expected to influence engagement in contraceptive practice among unmarried teenage primiparas. In addition, partial support was also provided for the theoretical propositions asserting relationships between basic conditioning factors and self-care agency and self-care (Denyes, 1988). Self-care agency was higher in teenagers with fewer siblings as a basic conditioning factor and number of siblings was a significant predictor of self-care agency (Denyes, 1988). Age as a basic conditioning factor was a significant predictor of self-care (Denyes, 1988). In this study emotional support from family and emotional support from friends as basic conditioning factors are expected to influence both self-care agency and contraceptive practice and that self-care agency is expected to influence contraceptive practice in unmarried teenage primiparas.
Self-care Agency, Basic Conditioning Factors and Contraceptive Practice

Failure to engage in contraceptive practice in the situation of unmarried teenage primiparas may be reflected in what Orem’s (1991) self-care deficit theory states as lack of self-care agency necessary for self-care. Gispert, Brinich, Wheeler and Krieger, study (1984) suggest that parental support of contraception plays a more important role in prevention of repeat pregnancies than the unmarried teenage primiparas attitudes toward contraception. Henson (1992) findings suggested that unmarried teenage primiparas who reported improved emotional support from family, following a family involvement program, were one half as likely to experience a second pregnancy.

Gisbert, Brinich, Wheeler and Krieger, study (1984) suggested that 71% of unmarried teenage primiparas who did not experience second pregnancy in a two year period, reported positive family relationships as compared to 47% of the repeated pregnancy group. The findings seem to suggest the importance of emotional support from families with regards to characteristics of those unmarried teenage primiparas without and those with repeated pregnancies. Emotional support from family may be a basic conditioning factor which influences self-care agency and
self-care or contraceptive practice in unmarried teenage primiparas. The relationships with families and friends play a major role in the social environment of teenagers and contribute to influencing preventative health behaviors (Lau, Quadrel & Hartman, 1990) which may include contraceptive practice.

Unmarried teenage primiparas are dependent emotionally on their families and usually live with them (Zuckerman, Walker, Frank, Chase & Hamburg, 1984). In addition teenagers spend most of their time with friends (Kulbok, Earls & Montgomery, 1988) who too may be a major source of emotional support. People choose friends who are likely to influence them (Kulbok, Earls & Montgomery, 1988). An earlier study indicated that teenagers who are first accompanied to a family planning service by a friend or mother keep their next appointment (Peach, 1980). Emotional support from family and emotional support from friends may be basic conditioning factors that influence self-care agency and self-care or contraceptive practice in unmarried teenage primiparas.

**Self-care Agency, Self-care and Contraceptive Practice**

Evidence suggests that self-care agency, necessary for self-care, is related to self-care practices in teenagers (Denyes, 1988). The findings suggest relationship of self-care agency and self-care practices
in teenagers. Evidence from other studies suggest that self-care agency is related to performance of health promoting behaviors (Burns, 1985; Davidson, 1988; Lakin, 1988).

In another study findings suggest that social support, which includes emotional support, is related to self-care agency (Jirovic & Kasno 1990) and to positive health practices (Muhlenkamp & Sayles, 1986) in adults. Further evidence also indicates that social support, which includes emotional support, is related to exercise of self-care activities in teenagers (Rew, 1987). On the basis of these findings contraceptive practice, as an aspect of self-care for promotion of personal well-being, may also be influenced by self-care agency in unmarried teenage primiparas. Evidence indicates that teenagers with good relationships with their families are also effective contraceptive users (Kastner, 1984). Emotional support from family and emotional support from friends may also influence self-care agency and contraceptive practice in unmarried teenage primiparas.

These findings suggest potential linkages of emotional support from family and emotional support from friends, as basic conditioning factors, with self-care agency and contraceptive practice in unmarried teenage primiparas. The concepts and linkages suggests a health
promotion model derived from Orem’s (1991) self-care deficit theory. Both emotional support from friends and emotional support from family, as basic conditioning factors, are expected to enhance self-care agency and contraceptive practice and self-care agency is expected to enhance contraceptive practice in unmarried teenage primiparas.

Summary

Campbell & Keating, 1976) and psychosocial variables pertaining contraceptive practice (Galavotti & Lovick, 1989; Harris, 1986; Burbach, 1980; Nadelson, Notman & Gillon, 1980; Adams, McAnarney, Penzanie & Tuttle, 1990) are inconsistent and do not seem to reflect adequately factors associated with unmarried teenage primiparas engagement in contraceptive practice.

The proposed health promotion model derived from self-care deficit theory (Orem, 1991) and also described by Hartweg (1990) and Nowakowski (1980) as well as tested by Denyes (1988) has important concepts with linkages that are expected to explain the influence of contraceptive practice in unmarried teenage primiparas. Research pertaining to emotional support from friends (Lau, Quadrel & Hartman, 1990; Peach, 1980; Kulbok, Earls & Montgomery, 1988) and emotional support from family (Gispert, Brinich, Wheeler & Krieger, 1984; Henson, 1992; Kastner, 1984; Zuckerman, Walker, Frank, Chase & Hamburg, 1984) as basic conditioning factors, exercise of self-care agency (Denyes, 1988; Burns, 1985; Davidson, 1988; Lakin, 1988; Jirovic & Kasno, 1990; Muhlenkamp & Sayles, 1986; Rew, 1987) and contraceptive practice (Kastner, 1984) reflecting self-care provide the potential for a health promotion model derived from Orem (1991) self-care deficit theory. Emotional support from family and
emotional support from family are expected to influence self-care agency and contraceptive practice and that self-care agency is expected to influence contraceptive practice.

Methodological Issues in Previous Studies

Several methodological issues relate to convenience sampling procedures and sample sizes which were very small and analyses that focused on group differences rather than association as also cited by Burke (1991). In addition a conceptual approach following a health promotion model and particular using Orem (1991) self-care deficit theory has never been used in relation to contraceptive practice among unmarried teenage primiparas. A health promotion model conceptual approach is intended to determine concepts and linkages that enhances contraceptive practice among unmarried teenage primiparas. This conceptual approach complements the community health nursing, health promotion function (Sprandley, 1990).

Summary

Teenage pregnancy is increasing and so is the repeated pregnancies among unmarried teenage primiparas. Repeated pregnancies among unmarried teenage primiparas result from failure to engage in contraceptive practice. Evidence suggests that availability and knowledge of
contraceptives as well as attitudes and economic status do not predict contraceptive use among unmarried teenage primiparas. A health promotion model derived from Orem (1991) self-care deficit theory provide important concepts with linkages that may explain contraceptive practice in unmarried teenage primiparas. A health promotion model conceptual approach has never been tested in this population. Previous studies used small samples and focused on group differences rather than associations. It is proposed that emotional support from family and emotional support from friends positively in influence both exercise of self-care agency and contraceptive practice and that self-care agency also positively influence contraceptive practice.
CHAPTER 3

METHOD

Areas of discussion in this chapter on the methods include design, sampling plan, sample size, variables, instruments, data collection procedures, and data analysis.

Design

A cross-section correlational design was used in this study to determine the strength and direction of the relationships of first the independent variables: emotional support from family, and emotional support from friends with exercise of self-care agency as the dependent variable using multiple regression analysis and second, the independent variables: emotional support from family, emotional support from friends, and exercise of self-care agency with contraceptive practice as the dependent variable using multiple logistic regression analysis. A sample of unmarried teenage primiparas was used for the study.

According to Brink and Wood (1988) the cross-section correlational study design assumes that the variables are not manipulated but measured numerically and studied as they exist naturally at one point in time. A correlational design is useful to examine association between variables in a conceptual model (Brink & Wood, 27)
1988; Burns & Grove, 1987). A conceptual model can be proposed to support the possibility of relationships among variables but there is no tested theory upon which to predict those relationships (Brink & Wood, 1988).

Essential features of the design include: a large random sample from the population of interest, multiple measurements on each subject, and statistical analysis appropriate to interpretation of the findings. The strength of the design lies in its ability to examine interaction among several variables at the same time and to determine which of them vary together. In addition, external validity is maximized when a representative sample is used. A random sampling procedure was used.

Sampling Plan

A random sample was drawn in Ohio from unmarried teenage primiparas who attended a major urban hospital children outpatient department for the care of their children. The sample site which was used included subjects from different social classes.

Inclusion criteria consisted of primiparas, 12 to 18 years of age who gave birth at the hospital in the preceding 24 months with children 3 months to 2 years old and were willing to participate. Primiparas under 18 years of age are considered as emancipated minors and that authorizes them to consent on their own behalf to
participate in the study. Once the teenager becomes a mother, then her ability to consent is generally unquestioned, unless serious cognitive or emotional deficit exist (Burke, 1991). In addition it would be inappropriate to obtain parental consent for unmarried teenage primiparas in this study that seeks responses on perceived emotional support from family. Further more the Code of Federal Regulations (DHHS, 1983) guidelines for protection of human subjects make it explicit in these guidelines, the Internal Review Boards prerogative to waive requirements for parental or guardian permission for children to participate in cases where such permission is not reasonable for protection of human subjects. Therefore, in this study, unmarried teenage primiparas’ willingness to participate implied consent.

**Sample Size**

A sample size of 75 subjects was chosen. The sample size was based on power analysis (Cohen, 1988). Power analysis in regression analysis for prediction requires a knowledge of previous studies $R^2$ value that is the squared multiple correlation coefficient. The $R^2$ for prediction of contraceptive practice is not known. Cohen (1988) recommends a medium $R^2$ value of .13 to be used in a formula: \[ \text{Sample size} = \frac{\lambda (1 - R^2)}{R^2} \] to determine the sample size.
size. Cohen (1988) tables Lambda value based on three independent variables, used in this study, at power of .80 and alpha .05 is 11.1. Using Lambda at 11.1 and $R^2$ at .13 in the formula gave rise to a sample size of 75 subjects. In order to compensate for potential missing data, 45 subjects were added to make a sample size of 120 unmarried teenage primiparas. Power analysis assures reliability of a statistical test used to yield statistically significant results (Cohen, 1988; Goodwin, 1984; Polit & Sherman, 1990; Rudy & Kerr, 1991).

Variables

The dependent variable is contraceptive practice. The independent variables are self-care agency, emotional support from family, and emotional support from friends.

Conceptual/Operational Definitions

The conceptual and operational definitions of variables described include empirical indicators and instruments used.

Contraceptive Practice

Contraceptive practice is the birth control activities an unmarried teenage primipara engages in on her own initiative and for her own behalf to prevent repeated pregnancy. The empirical indicator was either a 0 or 1 score achieved on the Contraceptive Practice Questionnaire (CPQ) scale (Galavotti, 1989).
**Self-care Agency**

Self-care agency is the complex power and operations of individuals to engage in self-care actions (Orem, 1991). The empirical indicator was the score achieved on the Exercise of Self-care Agency (ESCA) scale (Kearney & Fleischer, 1979).

**Emotional Support from Family**

Emotional support from family is the extent an individual unmarried teenage primipara believes that her needs for affection, information and feedback are met by her self defined family of origin. The empirical indicator was the score achieved on the Perceived Social Support from Family (PSS-Fa) scale (Procidano & Heller, 1983).

**Emotional Support from Friends**

Emotional support from friends is the extent an individual unmarried teenage primipara believes that her needs for affection, information, and feedback are met by her friends. The empirical indicator was the score achieved on the Perceived Social Support from Friends (PSS-Fr) scale (Procidano & Heller, 1983).

**Instruments**

The following instruments are described:

- Contraceptive Practice Questionnaire (Appendix E),
- Perceived Exercise of Self-care Agency Scale (Appendix
D), Perceived Social Support from Family Scale (Appendix B), Perceived Social Support from Friends Scale (Appendix C), and the Personal Data Questionnaire (Appendix A).

**Contraceptive Practice Questionnaire**

Contraceptive Practice Questionnaire (CPQ) (appendix E) developed by the investigator is based on previous studies (Galavotti, 1987; Galavotti & Lovick, 1989) measuring contraceptive behavior. Question one: "Are you sexually active?" requires a "yes" or "no" response. Question six: "If you are not sexually active, is preventing pregnancy your main reason?" requires a "yes" or "no" response. The second question: "How often do you and your partner use a birth control method?" requires one of the following responses "Never", "Almost Never", "Sometimes", "Almost Every Time", or "Every Time". Either a combined "No" response on question 1 and "yes" response on question six, or "Every Time" response on question 2 is indicative of contraceptive practice and is assigned a score of "1". Each of the remaining responses on question two: "Never", "Almost Never", "Sometimes", and "Almost Every Time" is indicative of failure to engage in contraceptive practice and is assigned a score of "0". The instrument yields a score of 0 or 1. Cases with a combined "no" response in question one and "no" response in question six are excluded. Questions 3, 4 and
5 were used to describe the sample where applicable in relation to type of contraceptive used, plan to have a baby, and how soon that baby was expected.

Out of the 75 subjects in the sample 4 did not meet the classification criteria for 0 and 1 and were excluded in the analysis involving contraceptive practice. Among the remaining 71 cases, more than 20% (34=47.9%) had a score of 1 and the remaining 37 (52.1) had a score of 0 which is appropriate for multiple logistic regression analysis.

**Exercise of Self-care Agency Scale**

The Exercise of Self-care Agency scale (ESCA) (Kearney & Fleischer, 1979) (Appendix D) was developed using a sample of 237 young adults basing on Orem (1991) self-care deficit theory. The instrument consists of 43 items measuring appraisal of one’s ability to engage in self-care activities.

The items are scored 0 to 4 according to participants’ responses on a 5-point Likert scale. Responses on positively worded items are assigned a score of 0 for "Very Uncharacteristic of Me" modified as "Very Much Unlike Me" to 4 for "Very Characteristic of Me" modified as "Very Much Like Me". Responses on negatively worded items are assigned a score of 0 for "Very Characteristic of Me" modified as "Very Much Like Me" to
4 for "Very Uncharacteristic of Me" modified as "Very Much Unlike Me". The scale has a total score range of 0 to 172 which is an interval level scale. A high score indicates self-care agency.

The instrument has a test-retest and split half reliability of .77 and .80 respectively. Construct validity was established by correlation and hypotheses testing. There was a negative correlation between abasement and exercise of self-care agency and a positive correlation with self-confidence, achievement and interaction (Kearney & Fleischer, 1979). The instrument items tap the nature of perceived exercise of self-care agency intended to be measured in this study.

In this study the instrument’s reliability was Alpha .82 (N=75). The variable measured had a mean of 127.16 with range of 84 (160-76) and standard deviation of 17.60 and skewness of -.53. There were no missing values.

**Perceived Social Support from Family Scale**

The Perceived Social Support from Family (PSS-Fa) scale (Procidano & Heller, 1983) (Appendix B) was developed and based on three validation studies using a sample of 222 subjects with mean age of 19. The PSS-Fa scale consists of 20 items of declarative statements intended to measure the extent an individual believes that her/his needs for emotional support are fulfilled by
the family.

The respondent answers: "Yes", "No", or "Don’t Know". Each item response, indicative of perceived social support from family, is scored 1 giving rise to a total range of 0 to 20 and no score is given to the "Don’t know category. A high score indicates emotional support.

The instrument has a test-retest reliability r=.83 over one month’s interval and a Cronbach’s alpha of .90 (N=222). Rideout, Rodin, and Littlefield (1990) reported Cronbach’s alpha greater than .80. Construct validity using correlational and hypothesis testing have been reported (Procidano & Heller, 1983; Rideout, Rodin & Littlefield, 1990; Benson & Heller, 1987; Sarason, Shearin, Pierce & Sarason, 1987). The theoretical base and items of the PSS-Fa tap the appropriate nature of emotional support intended to be measured in this study.

In this study the instrument’s reliability was Alpha .91 (N=75). The variable measured had a mean of 11.33 with range of 20 (20-0) and standard deviation of 6.01 and skewness of -.18. Three cases had one missing value and the group average for each item was used.

Perceived Social Support from Friends Scale

The Perceived Social Support from Friends (PSS-Fr) scale (Procidano & Heller, 1983) (Appendix C) was developed and based on three validation studies using a
sample of 222 subjects with mean age of 19. The PSS-Fr scale consists of 20 items of declarative statements intended to measure the extent an individual believes that her/his needs for emotional support are fulfilled by friends.

The respondent answers: "Yes", "No", or "Don’t Know". Each item response, indicative of perceived social support from friends, is scored 1 giving rise to a total range of 0 to 20 and no score is given to the "Don’t know category. A high score indicates emotional support.

The instrument has a test-retest reliability r=.83 over one month’s interval and a Cronbach’s alpha of .90 (N=222). The theoretical base and items of the PSS-Fa tap the appropriate nature of emotional support intended to be measured in this study.

In this study the instrument’s reliability was Alpha .83 (N=75). The variable measured had a mean of 13.97 with range of 19 (19-1) and standard deviation of 4.35 and skewness of -.81. Two cases had one missing value and the group average for each item was used.

**Personal Data Questionnaire**

The Personal Data Questionnaire (PDQ) (Appendix A) developed by the investigator was used to collect demographic information including: age, child’s age, ethnicity, household composition, education, occupation,
source of financial support, and economic status. The information was used to describe the sample.

Procedure

The procedure included protection of human subjects, data collection, data collection procedure and data analysis.

Protection of Human Subjects

The proposed study was reviewed by the Case Western Reserve University Institutional Review Board and the study site tertiary Hospital Institutional Review Boards and approved before the subjects using the facility were requested to participate. Subjects were informed that their participation was voluntary and that they were free to withdraw at any point. Subjects were also informed that refusal to participate would not affect their health services and that of their children. Subjects participation in the study implied consent.

There were no physical or psychological risks expected from participating in the study. The investigator offered each subject $5 in appreciation of their time to complete the questionnaire if all questions were answered. Participants in the study may have benefited from increased awareness of their self-care and financial reimbursements for their time.

Confidentiality was assured by using identity
numbers in place of names for all participants and access to completed questionnaires was restricted to the investigator and stored in a locked file cabinet. Data was stored on a floppy disc and kept in a locked cabinet.

**Data Collection Procedure**

Following approval of the research proposal by the Case Western Reserve University and the tertiary hospital Institutional Review Boards, permission was sought for access to the hospital children outpatient study site. The investigator approached the medical director of the hospital’s children outpatient department, to explain the purpose of the study and elicit help in the identification of potential subjects.

The hospital’s department of family health provided the investigator with a list of all primiparas aged 12 to 18 years who gave birth in the preceding 24 months and with children 3 months to 2 years old. The list included each primipara’s name, date of birth, and hospital number as well as the child’s hospital number and date of birth based on the hospital computerized system.

The investigator used the list consisting of 272 potential subjects to randomly select 120. Each of the 272 subjects on the list was assigned a number. A computer-assisted simple random sampling procedure was used with SPSS-PC package (Norusis 1991). The subjects
were identified by the investigator with the assistance of the hospital children outpatient department computerized daily appointment system. Halfway the data collection period an additional 23 were added to the list making a total of 295. The first randomly selected subjects on the hospital computerized daily children appointments were identified in the order they arrived at the center. Potential subjects were approached by the investigator individually. The purpose of the study was explained by the investigator as per explanation sheet (Appendix F). Subjects who agreed to participate were given a questionnaire consisting of: CPQ, ESCA scale, PSS-Fa scale, PSS-Fr scale, and PDQ. The subjects were asked to complete the questionnaire while waiting for their children’s appointments or soon after. Each participant who answered all questions received $5 for her time, which was not more than 30 minutes. The investigator used the allocated patient waiting room facility at the site for completion of questionnaires by the subjects. The first 75 subjects identified and were willing to participate were included in the study. Participation implied consent.

Data Analysis

Data was analyzed using a statistical package SPSS-PC (Norusis, 1990) software. Data coding was carried out
followed by data entry and data cleaning using SPSS-PC Data Entry software (Norusis, 1990). Sample demographic characteristics were described. Descriptive statistics comprised of frequencies and measures of central tendency regarding ages of subjects and their children, and that of the variables: exercise of self-care agency, emotional support from family, and emotional support from friends. The Pearson product moment correlations of the variables: emotional support from family, emotional support from friends, and self-care agency was determined. Multiple regression analysis was used to predict self-care agency with emotional support from family, and emotional support from friends as independent variables (Figure 2). Multiple logistic regression analysis was used to predict contraceptive practice with self-care agency, emotional support from family, and emotional support from friends as independent variables (Figure 2). Details of multiple regression analysis and multiple logistic regression are described in the next chapter.

Since the purpose of this study was to test the predictive ability of the proposed health promotion model multiple regression analysis and logistic regression analysis are suitable methods for this purpose. Using a criteria of .05 level of significance for rejecting the
Basic Conditioning Factors...Self-care Agency...Self-care

emotional support from friends

self-care agency

contraceptive practice

emotional support from family

Figure 2. Multiple and Logistic regression diagram for the hypothesized model of engagement in contraceptive practice.
null hypotheses, the following proposed hypotheses were tested:

1. Emotional support from family has a positive effect on self-care agency.
2. Emotional support from friends has a positive effect on self-care agency.
3. Emotional support from family and emotional support from friends have a positive effect on self-care agency.
4. Self-care agency has a positive effect on contraceptive practice.
5. Emotional support from friends has a positive effect on contraceptive practice.
6. Emotional support from family has a positive effect on contraceptive practice.
7. Emotional support from family, emotional support from friends, and self-care agency have a positive effect on contraceptive practice.
CHAPTER 4

RESULTS

The results of the study data analysis discussed in this chapter include description of the sample in relation to demographic information, description of the sample in relation to contraceptive practice, multiple regression analysis, and logistic regression analysis.

Sample Demographics

Out of the 78 unmarried teenage mothers approached to participate in the study, 75 completed the questionnaire. Three subjects refused to participate in the study due to lack of interest. The study sample ranged from 13 (1.3%) to 18 years of age (42%) with a mean age of 17.013 and standard deviation of 1.109. The numbers in each age group increased with age to almost double in size (Table 1.). Only 1 (1.3%) was white and 73 (97%) were black (Table 2.). The sample children’s age ranged from 3 (6.7) to 24 (5.3%) months old. The majority of the children were 8 (9.3%), 10 (12%), 11 (8%), and 16 (8%) months old (Table 1.).

Unmarried teenage mothers lived mainly either alone 15 (20%) or with own mother 37 (49) (Table 2.). The fact that the majority live with their family is consistent with previous studies (Zuckerman, Walker, Frank, Chase & Hamburg, 1984). Forty nine (65%) had some high school and
Table 1.

Description of Sample Characteristics 1

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thirteen years</td>
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<td>1.3</td>
</tr>
<tr>
<td>Fourteen years</td>
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</tr>
<tr>
<td>Fifteen years</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Sixteen years</td>
<td>14</td>
<td>18.7</td>
</tr>
<tr>
<td>Seventeen years</td>
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<td>29.3</td>
</tr>
<tr>
<td>Eighteen years</td>
<td>32</td>
<td>42.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children’s Age</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>6.7</td>
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<tr>
<td>Ten months</td>
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<td>12.0</td>
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<tr>
<td>Eleven months</td>
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</tr>
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<td>Twelve months</td>
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<tr>
<td>Twenty three months</td>
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<td>1.3</td>
</tr>
<tr>
<td>Twenty four months</td>
<td>4</td>
<td>5.3</td>
</tr>
</tbody>
</table>
19 (25.3%) graduated from high school (Table 2.). Only 15 (20%) were unemployed and 40 (53%) were students (Table 2.).

The main source of income for 46 (61%) of the subjects was public assistance (Table 3.). The fact that the majority are supported by public assistance is consistent with Murray (1992) report. Although 18 (24%) of the subjects did not know their income, 24 (32%) had a yearly income of $3,000 to $3,999 and only 13 (17.3%) had less and 20 (26.6%) had more than that amount. Only 21 (28%) were of the opinion that money they had was not meeting their needs, whereas 38 (50.7%) were fairly satisfied and 16 (21.3%) were very satisfied. Thirty three (44%) felt that they had even extra money for small luxuries.

Details of income are given on Table 3.

Sample Contraceptive Practice

Seventy (93.3%) of the subjects were sexually active (Table 4.). Only 1 (1.3%) subject was not sexually active as a means of preventing pregnancy (Table 5.). Four (5.3%) subjects were not sexually active for reasons other than prevention of pregnancy.

Apart from 5 (6.7%) subjects who were not sexually active, 33 (44%) used some form of birth control method every time and the remainder varied from almost every time (13.35), sometimes (21.3%), almost never (5.3%) to
Table 2.  

**Description of Sample Characteristics 2**

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<thead>
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<th>Race</th>
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<tr>
<td>Black</td>
<td>73</td>
<td>97.3</td>
</tr>
<tr>
<td>Other</td>
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**Person(s) with whom each live**

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<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
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<td>Alone (or with child)</td>
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<td>20.0</td>
</tr>
<tr>
<td>Own mother</td>
<td>37</td>
<td>49.3</td>
</tr>
<tr>
<td>Own father</td>
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</tr>
<tr>
<td>Own mother and father</td>
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<td>8.0</td>
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<tr>
<td>Other relatives</td>
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<tr>
<td>Friends</td>
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<td>Other</td>
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**Education**

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<td>&gt; 7 years of school</td>
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<td>1.3</td>
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**Occupational status**

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<td>Employed</td>
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<tr>
<td>Unemployed</td>
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<td>20.0</td>
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<tr>
<td>Student/Employed</td>
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<td>9.3</td>
</tr>
<tr>
<td>Student/Unemployed</td>
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<td>8.0</td>
</tr>
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</table>
Table 3.

**Description of Sample Characteristics**

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<thead>
<tr>
<th>Source of Financial Support</th>
<th>Number</th>
<th>Percent</th>
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</tr>
<tr>
<td>Public assistance</td>
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<td>61.3</td>
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<tr>
<td>Other</td>
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<td>13.3</td>
</tr>
<tr>
<td>Missing</td>
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<tr>
<td>Job/public assistance</td>
<td>6</td>
<td>8.0</td>
</tr>
<tr>
<td>Public assistance/other</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income per Year</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - $1,999</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>$2,000 - $2,999</td>
<td>9</td>
<td>12.0</td>
</tr>
<tr>
<td>$3,000 - $3,999</td>
<td>24</td>
<td>32.0</td>
</tr>
<tr>
<td>$4,000 - $4,999</td>
<td>6</td>
<td>8.0</td>
</tr>
<tr>
<td>$5,000 - $6,999</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>$7,000 - $9,999</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>$10,000 - $14,999</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>$15,000 - $19,999</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>$20,000 - $29,999</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Don't know</td>
<td>18</td>
<td>24.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Money Meeting Needs</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very well</td>
<td>16</td>
<td>21.3</td>
</tr>
<tr>
<td>Fairly well</td>
<td>38</td>
<td>50.7</td>
</tr>
<tr>
<td>Poorly</td>
<td>21</td>
<td>28.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extra Money for Small Luxuries</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>33</td>
<td>44.0</td>
</tr>
<tr>
<td>No</td>
<td>42</td>
<td>56.0</td>
</tr>
</tbody>
</table>
never (9.3%) (Table 4.). The majority were either using condoms alone (18.7%) or condoms and birth control pills (18.7%). Quite a number of subjects used either norplant/depot-provera (12%) or birth control pills (9.3%).

Table 4. shows that the subjects used a variety of contraceptives either one or in combination. The birth control methods used suggest that the subjects had a very good knowledge of standard contraceptives. The fact that 39% of the subjects were not using contraceptives regularly had nothing to do with knowledge and is consistent with earlier findings (Adams, McAnarney, Penzanie & Tuttle, 1990; Burbach, 1980; Nadelson, Notman & Gillon, 1980). Three (4%) subjects were planning to have a baby and only 1 (1.4%) wanted to have a baby in 6 months and the other 1 (1.4%) in 13 months (Table 5.).

Multiple Regression Analysis

The self-care deficit theory (Orem, 1991) states that basic conditioning factors influence self-care agency, and self-care, and that self-care agency is necessary for self-care. The purpose of this study was to determine the relationship among emotional support from family, and emotional support from friends’ basic conditioning factors, self-care agency, and engagement in contraceptive practice. In order to determine the
Table 4.

Description of Sample Contraceptive Practice 1

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sexually active</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>70</td>
<td>93.3</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Use of birth control method</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Applicable</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Never</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>Almost never</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Sometimes</td>
<td>16</td>
<td>21.3</td>
</tr>
<tr>
<td>Almost every time</td>
<td>10</td>
<td>13.3</td>
</tr>
<tr>
<td>Every time</td>
<td>33</td>
<td>44.0</td>
</tr>
<tr>
<td><strong>Birth control method used</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not sexually active</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Condoms</td>
<td>14</td>
<td>18.7</td>
</tr>
<tr>
<td>Foam</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms and Foam</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Birth control pills</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>Other (Norplant/Depo-provera)</td>
<td>9</td>
<td>12.0</td>
</tr>
<tr>
<td>Condoms/Foam</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms/Birth control pills</td>
<td>14</td>
<td>18.7</td>
</tr>
<tr>
<td>Condoms/Withdrawal</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms/Other</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Foam/Condoms and Foam</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms and Foam/Birth control pills</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms and Foam/Other</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Condoms/Foam/Birth control pills</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>Condoms/Birth control pills/Other</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Condoms and Foam/Birth control pills/Contraceptive sponge</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>No method used</strong></td>
<td>8</td>
<td>10.7</td>
</tr>
</tbody>
</table>
Table 5.

**Description of Sample Contraceptive Practice 2**

<table>
<thead>
<tr>
<th>Planning to have a baby</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not sexually active</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Not applicable</td>
<td>62</td>
<td>82.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When each would like to have a baby</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not sexually active</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>Six months</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Thirteen Months</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Not applicable</td>
<td>67</td>
<td>90.5</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>Missing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preventing pregnancy by not being sexually active</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Not applicable</td>
<td>70</td>
<td>93.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Computed Contraceptive Practice Variable</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>37</td>
<td>52.1</td>
</tr>
<tr>
<td>Yes</td>
<td>34</td>
<td>47.9</td>
</tr>
</tbody>
</table>
influence of emotional support from family and friends
basic conditioning factors on self-care agency, multiple
regression analysis was used. Multiple regression
analysis was used to test the association of emotional
support from family, emotional support from friends and
self-care agency. The variables are measured at interval
level which is appropriate for multiple regression
analysis (Pedhazur, 1982).

In order to determine whether the independent
variables: emotional support from family (PSS-Fa), and
emotional support from friends (PSS-Fr) predict exercise
of self-care agency (ESCA) multiple regression model that
was tested is linear and additive: \[ Y = b_0 + b_1X_1 + b_2X_2 + e \]. \( Y(ESCA) \) is the dependent variable, \( X_1(\text{PSS-Fa}) \), and
\( X_2(\text{PSS-Fa}) \) are independent variables \( b \)'s are
unstandardized coefficients and \( e \) is error. The
independent variables are at the same causal level and
were therefore entered in the regression equation
simultaneously. The independent variables emotional
support from family, and emotional support from friends
were regressed simultaneously on the dependent variable,
self-care agency.

Combined effects of the independent variables were
based on the significant \( R^2 \) expressed as the percentage
of explained variance in the dependent variable. The
significant unstandardized coefficients \((b)\) that were observed indicated the change in the dependent variable for a unit change in the respective independent variables. Such results suggested that the respective independent variables predicted the dependent variable.

The relative importance of the independent variables was based on the magnitudes of the respective standardized coefficients \((\beta)\) of the significant bs. The direction of the association was based on the sign of the significant bs.

One of the goals of multiple regression analysis is to ensure that the required assumptions including normal distribution of the dependent variable, homoscedasticity, and linearity are not violated as that may affect the results (Pedhazur, 1982; Cohen & Cohen, 1983). Residual analysis was performed to ensure if the required assumptions were met (Verran & Ferketich, 1987).

Using multiple regression analysis and significance level of .05 the following hypotheses were tested:
1. Emotional support from family has a positive effect on self-care agency.
2. Emotional support from friends has a positive effect to self-care agency.
3. Emotional support from family emotional support from friends have a positive effect on self-care agency.
Multiple Regression Analysis Results

As a preliminary to multiple regression analysis, a Pearson r correlation matrix of the independent variables: emotional support from family (PSS-Fa) and emotional support from friends (PSS-fr) and the dependent variable: self-care agency (ESCA) was carried out to check for absence of multicollinearity and presence of a linear relationship which are two of the assumptions of regression analysis (Pedhazur, 1962). Table 6 shows the correlation matrix.

The correlation coefficient of the independent variables (r=.26) is small and is not significant and suggests that the assumption of multicollinearity is not violated. The correlation coefficients of the independent variables emotional support from family (r=.48; p<.001), and emotional support from friends (r=.43; p<.001) with the dependent variable self-care agency are both positive and significant supporting a linear relationship. As the emotional support from family increases, self-care agency also increases and as emotional support from friends increases, self-care agency also increases. Therefore the relationship of the study variables is as follows:

1. Emotional support from family is positively associated with self-care agency.

2. Emotional support from friends is positively
Table 6

**Correlation Matrix of Multiple Regression Variables**

<table>
<thead>
<tr>
<th></th>
<th>Y^i (ESCA)</th>
<th>X_1 (PSS-Fa)</th>
<th>X_2 (PSS-Fr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y^i (ESCA)</td>
<td>1.0000</td>
<td>.4848**</td>
<td>.4333**</td>
</tr>
<tr>
<td>X_1 (PSS-Fa)</td>
<td>.4848**</td>
<td>1.0000</td>
<td>.2665</td>
</tr>
<tr>
<td>X_2 (PSS-Fr)</td>
<td>.4333**</td>
<td>.2665</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

* p<.01  *p<.001

N=75

Y^i (self-care agency)
X_1 (emotional support from family)
X_2 (emotional support from friends)
associated with self-care agency.

The results support hypotheses 1 and 2 in terms of a positive relationship between the study variables but does not imply causality. Multiple regression results determine direct effects. Table 7 shows the results of the multiple regression analysis. The combined effect of the independent variables is indicated by significant $R^2 = .32$ ($F=17.51708; p<.001$). The significant $F$ test suggests linear association and the significance of the equation. The significant $R^2$ represents the variance in the dependent variable explained by the independent variables in the equation. Therefore emotional support from family and emotional support from friends account for 32% of the explained variance in self-care agency.

The $T$-tests for the unstandardized regression coefficients $b$ of both emotional support from family ($1.105642; p<.001$), and emotional support from friends ($1.332350; p<.001$) are significant. The $bs$ represents a change in self-care agency for a unit change in emotional support from family and emotional support from friends. Therefore emotional support from family and emotional support from friends are predictors of self-care agency. The magnitude of the standardized regression coefficients $B$ indicates the relative importance of the independent variables. Therefore emotional support from family
(.381574) is relatively more important than emotional support from friends (.332414) in predicting self-care agency. The signs of the significant unstandardized regression coefficients are both positive suggesting that both emotional support from family and emotional support from friends have a positive effect on self-care agency. The resulting multiple regression prediction model: ESQA = 96.012018 (constant) + 1.105642 (PSS-Fa) + 1.332350 (PSS-Fr). Therefore multiple regression analysis support the following hypotheses:

1. Emotional support from family has a positive effect on self-care agency.

2. Emotional support from friends has a positive effect on self-care agency.

3. Emotional support from family and emotional support from friends have a positive effect on self-care agency.

**Residual Analysis**

Residual analysis was carried out to check for possible violation of multiple regression analysis (Norusis, 1991) as well as to identify outliers which may influence the results. Residuals of estimated values of regression provide the basis for assessing adequacy of the model (Cohen & Cohen, 1983). Norusis (1991) describes a residual as the part that is left after the model is fit and represents the difference between the observed
Table 7

Multiple Regression Analysis of self-care agency

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>X₁ (PSS-Fr)</td>
<td>1.332350*</td>
<td>.403651</td>
<td>.332414*</td>
</tr>
<tr>
<td>X₂ (PSS-Fa)</td>
<td>1.105642**</td>
<td>.291812</td>
<td>.381574**</td>
</tr>
<tr>
<td>Constant</td>
<td>96.012018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ R^2 = .32** \quad F=17.51708 \]

*p<.01  **p<.001

N=75

X₁ (emotional support from friends)
X₂ (emotional support from family)
value and the value predicted by the model. The residual statistics of the standardized residuals show that there were no outliers on the dependent measure using the criteria of 2.56 or 3 standard deviations as a cut value (Weisfield & Butler 1988). The residual summary statistics showed that the assumption of the mean of zero was not violated (Verran & Ferketich, 1984).

The histogram of the standardized residuals showed that the distribution was fairly normal. There was no clustering of residuals toward the center with the tail towards the either positive or negative values implying positive or negative skewness respectively.

The probability plot of observed residuals versus expected did not show deviation from normality as values were fairly on the line. Therefore the assumption of normal distribution of the residuals was not violated. The assumption of homoscedasticity was not violated as indicated by the observed random distribution with no evidence of some grouping pattern suggesting omission of an independent variable acting upon the dependent measure. The scatterplots of independent variables versus residuals assessing the assumption of fixed X and linearity, do not present a pattern and are randomly distributed around the mean suggesting that no important variable has been omitted.
Lever and Cook D identifies influential cases on the estimates of regression coefficients. Cook D did not identify cases greater than .2 which can be considered as an outlier (Weissfeld & Butler, 1988). Using a formula \( \frac{2(K+1)}{N} \) yielding \( \frac{2(2+1)}{75} = .08 \) to determine the cut value, Lever did not identify an outlier. Therefore residual analysis support that there was no evidence of violation of the multiple regression analysis which might have affected the results.

**Multiple Logistic Regression**

In order to determine whether the independent variables: self-care agency (ESCA), emotional support from family (PSS-Fa), and emotional support from friends (PSS-Fr) predict contraceptive practice (CPQ), the multiple logistic regression model that was tested is:

\[
g(\text{CPQ}) = b_0 + b_1(\text{ESCA}) + b_2(\text{PSS-Fa}) + b_3(\text{PSS-Fr}).
\]

The \( g(\text{CPQ}) \) represents the log odds of contraceptive practice, the dependent variable, \( b_0 \) is the constant, and \( b_1, b_2, \) and \( b_3 \), respectively are coefficient estimates for a one unit change of each of the significant independent variables while keeping the effects of others in the model constant. Therefore using the changes in the log odds associated with each significant independent variable, interpretation about effects were made. A coefficient on each of the independent variables’ (ESCA),
(PSS-FA), and (PSS-Fr) continuous measures, represents the change in log odds for contraceptive practice (CPQ) for a unit change in the respective independent variables. Each coefficient estimate is an exponent of $b$ ($e^b$) that is easily calculated and expressed in odds ratio. The SPSS-PC statistical package software (Norusis, 1990) provides the associated odds ratio ($e^b$) for each independent variable coefficient. Values for odds ratio greater than or equal to 2.5 or 3.0 are generally taken to represent lower limits of a strong association (Fleis, 1981).

Meaningful interpretation of emotional support from family, emotional support from friends and self-care agency as continuous scaled covariates requires development of a method for point and interval estimation. Using 10 as an increase in score for each of the variables, the resulting respective odds ratios are calculated. The resulting odds ratios indicate the likelihood of engagement in contraceptive practice increase for every 10 score increase in emotional support from family, emotional support from friends, and self-care agency respectively.

The direction of the association was based on the sign of the parameter estimate ($b$). Positive sign increases and negative sign decreases probability of
contraceptive practice. The same applies when the log ratio of significant coefficients is more than 1 which indicates increase in probability of contraceptive practice and a decrease when it less is than 1. The $R$ also represents the partial correlation of each of the independent variables in the model with the dependent variable and its positive or negative sign indicates an increase or a decrease respectively. Magnitudes of the $b$ represents a change in the log odds associated with the unit change in the independent variable. Furthermore, an additive change represents an exponential or multiplicative change in the log odds or probability of contraceptive practice.

Multiple logistic regression is a type of log linear analysis used to fit a model to a binary dependent variable (Hosmer & Lemeshow, 1989). In multiple logistic regression maximum likelihood estimation procedures use observed values of 1 and 0 on the dependent variable to estimate an intercept and coefficients for independent variables in the model. The principle of maximum likelihood estimation is to choose coefficients which maximize the likelihood of observing the particular $Y$ value. Conceptually maximum likelihood estimation chooses coefficients associated with the highest probability or likelihood of observing the particular $Y$ value.
The independent variables self-care agency, emotional support from family, and emotional support from friends were entered simultaneously in multiple logistic regression analysis to predict contraceptive practice. Contraceptive practice was treated as a dichotomous variable whereby those classified as engaging in contraceptive were coded as one the others coded as 0.

The goodness of fit of the model is indicated by the significant model chi-square test which is similar to the F-test for $R^2$ in multiple regression. The significant model chi-square supports the contribution of model with the variables as compared to the model with the constant alone. The model chi-square test the null hypothesis that the coefficients for all the variables in the model except the constant are 0. In addition the significant improvement similar to the R-change in multiple regression also confirms the contribution of the added variables in the second model which in this case is after the model with the constant alone. An examination of how well the model classifies the observed data on the classification table is also a way of determining how well the model performs (Norusis, 1990). The observed outcomes are compared to the predictions. A high percentage of about 70% or more, of correctly classified observed outcomes supports goodness of fit of the model.
Finally an examination of the histogram of estimated probabilities of contraceptive practice also assesses the goodness of fit of the model. Cases engaging in contraceptive practice should be on the right of 0.5 while those who are not engaging in contraceptive practice should be on the left of 0.5. The more the two groups cluster to their respective ends of the plot the better (Norusis, 1990).

An analysis of outliers was also done to assess the adequacy of the resulting logistic regression model (Hosmer, Taber & Lemeshow, 1991). A casewise plot identifies outliers greater than 2. Outliers are standardized residuals. The residual is the difference between the observed probability of the event and the predicted probability of the event based on the model. Standardized residuals should be approximately distributed with a mean of 0 and a standard deviation of 1.

In addition an analysis of the deviance, Cook’s distance and Leverage was done to assess the adequacy of the model. The deviance compares the predicted probability of being in the correct group based on the model to the perfect prediction of 1. Large values of deviance indicate that the model does not fit the case well. Leverage values are used to detect observations
that have a large impact on the predicted values. Cook’s distance measures the influence of a case. The model may be improved by removing such a case. Plots of the residual, deviance, Cook’s D and leverage with the predicted were carried out. The plots were examined for adequacy of the model.

One of the goals of multiple logistic regression analysis is to ensure that there is no multicollinearity as that may affect the results. Using logistic regression and significance level of .05 the following hypotheses were tested:

4. Self-care agency has a positive effect on contraceptive practice.
5. Emotional support from friends has a positive effect on contraceptive practice.
6. Emotional support from family has a positive effect on contraceptive practice.
7. Emotional support from family, emotional support from friends, and self-care agency have a positive effect on contraceptive practice.

Multiple Logistic Regression Analysis Results

As preliminary analysis to multiple logistic regression analysis, the Pearson correlation matrix of the independent variables was carried out to check for multicollinearity. Table 8 shows the correlation matrix.
Table 8

**Correlation Matrix of Logistic Regression Variables**

<table>
<thead>
<tr>
<th></th>
<th>$X_1$ (ESCA)</th>
<th>$X_2$ (PSS-Fa)</th>
<th>$X_3$ (PSS-Fr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$ (ESCA)</td>
<td>1.0000</td>
<td>0.4848**</td>
<td>0.4333**</td>
</tr>
<tr>
<td>$X_2$ (PSS-Fa)</td>
<td>0.4848**</td>
<td>1.0000</td>
<td>0.2665</td>
</tr>
<tr>
<td>$X_3$ (PSS-Fr)</td>
<td>0.4333**</td>
<td>0.2665</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

*p < .01  **p < .001
N=71

$X_1$ (self-care agency)
$X_2$ (emotional support from family)
$X_3$ (emotional support from friends)
Although the correlations of emotional support from family (r=.48; p<.001) and emotional support from friends (r=.43; p<.001) with self-care agency are significant, they are not large (r>.8) enough for multicollinearity.

When only the dependent variable, contraceptive practice and the constant were included in the logistic regression model, the -2 log likelihood was 98.300101. As the independent variables: emotional support from family (PSS-Fa), emotional support from friends (PSS-Fr), and self-care agency (ESCA) were included in the model, the model chi-square that compares log likelihood function value with and without the variables in question tests the null hypothesis that all the coefficients for all the terms in the current model except the constant are 0. The large significance observed (p>.05) suggested that the hypothesis could not be rejected. The contribution of the variables in the model was not supported. In addition the improvement which is the test of the null hypothesis that the coefficients of the variables in second model is 0 and in this case is the model that follows the constant only model. The observed large significance (p>.05) suggest also that the variables do not contribute in explaining contraceptive practice.

The classification table correctly classified only 59% of the contraceptive practice of the responses.
Therefore only 59% of the responses to contraceptive practice were correctly predicted by the model.

Examination of the histogram of estimated probabilities of contraceptive practice did not show a pattern whereby cases engaging in contraceptive practice clearly clustered on the right of 0.5 while those who are not engaging in contraceptive practice clustered on the left of 0.5. The more the two groups cluster to their respective ends of the plot the better (Norusis, 1990).

Table 9 shows the multiple logistic regression coefficients (b) for emotional support from family (.0437; p>.05), emotional support from friends (.0983; p>.05), and self-care agency (.0134; p>.05) which are all not significant basing on the wald statistic. Apart from emotional support from friends with a partial correlation of .05 the other two have a partial correlation of 0 with contraceptive practice. These results were not expected. The results suggest that the variables included in the model have no effect on contraceptive practice. When the coefficients are not significant interpretation of the odds ratio cannot be made. The multiple logistic regression analysis did not support the following hypotheses:

4. Self-care agency has a positive effect on
Table 9

Logistic Regression Analysis of contraceptive practice

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>Odds Ratio</th>
<th>R</th>
</tr>
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<td>$X_1$ (ESCA)</td>
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<td>.0178</td>
<td>.9867</td>
<td>.0000</td>
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<td>.0463</td>
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<td>.0000</td>
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<td>$X_3$ (PSS-Fr)</td>
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<td>.0653</td>
<td>1.1033</td>
<td>.0522</td>
</tr>
</tbody>
</table>

*p<.05

N=71

$X_1$ (self-care agency)
$X_2$ (emotional support from family)
$X_3$ (emotional support from friends)
5. Emotional support from friends has a positive effect on contraceptive practice.
6. Emotional support from family has a positive effect on contraceptive practice.
7. Emotional support from family, emotional support from friends, and self-care agency have a positive effect on contraceptive practice.

Adequacy of Logistic Regression Model

The Logistic regression model was assessed for adequacy in predicting contraceptive practice. Assessment of outliers indicated that there were none found greater than 2 and no casewise plot was produced. The variables for the predicted values, residuals, deviance, leverage and Cook’s D were created. The residuals, leverage Cook’s D, and deviance were plotted against the predicted.

Examination of the plots did not show influential cases which might have affected the adequacy of the model.

Summary

The results of the study data analysis was discussed in this chapter and it included description of the sample in relation to demographic information, description of the sample in relation to contraceptive practice, multiple regression analysis, and logistic regression.
analysis including interpretations of results. Analysis of residuals was presented for multiple regression and assessment of the adequacy of the resulting multiple logistic regression model. Multiple regression analysis supported hypotheses 1, 2, and 3. However multiple logistic regression analysis did not support hypotheses 4, 5, 6, and 7. The results on multiple logistic regression analysis were not expected.
CHAPTER 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The chapter first presents a summary of the study. The results of the study are then discussed followed by implications for theory and research, and recommendations for community health nursing practice respectively.

Summary

This study was to determine the influence of emotional support from family and emotional support from friends basic conditioning factors, and self-care agency on unmarried teenage primiparas’ engagement in contraceptive practice. The study was based on Orem’s (1991) self-care deficit theory. The self-care deficit theory states that basic conditioning factors influence self-care agency and self-care and that self-care agency is necessary for self-care. In this study contraceptive practice was viewed as an aspect of self-care. Three hypotheses were proposed to determine the influence of emotional support from family and emotional support from friends basic conditioning factors on self-care agency and tested using multiple regression analysis. Four other hypotheses were proposed to determine the influence of emotional support from family, emotional support from friends basic conditioning factors, and self-care agency on contraceptive practice, a dichotomous variable, and
tested using multiple logistic regression analysis. The hypotheses provided linkages for a proposed health promotion model for contraceptive practice.

A cross-sectional design was used. A random sample of 75 subjects 18 years and younger was used and drawn from one major tertiary hospital’s children out patient department in Ohio. The instruments were: Perceived Social Support from Family (PSS-Fa) scale (Procidano & Heller, 1983); Perceived Social Support from Friends (PSS-Fr) scale (Procidano & Heller, 1983); Exercise of Self-care Agency (ESCA) scale (Kearney & Fleischer, 1979); Contraceptive Practice Questionnaire (CPQ) developed by the investigator, and based on previous studies (Galavotti, 1987; Galavotti & Lovick, 1989) and a personal data questionnaire developed by the investigator.

Descriptive statistics indicated that the average age of the study sample was 17 with a range of 5 (18-13) and a standard deviation of 1. Their children had an average age of 11.36 months with a range of 21 (24-3) and standard deviation of 5.661. The majority were black (97%) and 49% lived with their own mothers. Sixty five percent had some high school, and 53% were students. Sixty one percent were on public assistance, and 58.6% had a yearly income of $3000 and above. Ninety three percent
were sexually active, and 83% were using some form of standard contraceptive but 39% were not doing so regularly and yet only 2.8% were planning to have a baby in six to thirteen months time. Four (5.3%) were neither sexually active nor using abstinence as a means of birth control and were therefore excluded in the analysis including the contraceptive practice variable.

The multiple regression analysis supported the hypotheses. Emotional support from family had a positive effect on self-care agency. Emotional support from friends had a positive effect on self-care agency. Emotional support from family and emotional support from friends had a positive effect on self-care agency.

The multiple logistic regression analysis did not support the hypotheses. Emotional support from family did not have a positive effect on contraceptive practice. Emotional support from friends did not have a positive effect on contraceptive practice. Self-care agency did not have a positive effect on contraceptive practice. Emotional support from family, emotional support from friends, and self-care agency did not have a positive effect on contraceptive practice.

The results partially supported Orem’s (1991) self-care deficit theory. The reason why the other part of the theory was not supported may be attributed to the age of
the sample with regards to response behavior to the contraceptive practice questionnaire. Due to their younger age the subjects may not have felt confident enough to express the reality and may have responded in a socially acceptable way irrespective of their level of score on the emotional support from family, emotional support from friends and self-care agency. Previous studies (Henson, 1992; Kaster, 1984; Peach, 1980) which reported differences in contraceptive practice between those perceiving emotional support from family and friends and those who did not, included the 19 year olds. The nature of the measure of emotional support from family and friends and self-care agency did not seem to require the need to respond in a socially acceptable way among the subjects in the sample as the results are consistent with previous studies (Jirovic & Kasno, 1990; Rew, 1987). As a result hypotheses with linkages of those variables as applied to Orem (1991) theory were supported.

It is recommended that the study be repeated with other teenagers as data collectors and using more than one site away from hospital environment and perhaps including the 19 year old primiparas. However it still remains that the theory has been partially supported in this sample from the site used. Community health nurses
should consider facilitating emotional support from family and emotional support from friends to promote self-care agency. However, community health nurses should be cautious about utilizing the health promotion model for contraceptive practice as stated in this study but should carry out more research.

Discussion and Implications

The study results as per multiple regression analysis and multiple logistic regression analysis is discussed with reference to nursing theory development focusing on previous studies and in relation community health nursing practice and research. Implications of the study are also highlighted.

Nursing Theory Development

Orem (1991) self-care deficit theory was applied in a health promotion model for contraceptive practice. The study determined the influence of emotional support from family and emotional support from friends basic conditioning factors and self-care agency on contraceptive practice. The self-care deficit theory states that basic condition factors influence self-care agency and that self-care agency is necessary for self-care. Contraceptive practice is viewed as an aspect of self-care in this study.
Basic Conditioning Factors

Emotional support from family, and emotional support from friends were the basic condition factors in this study. Both emotional support from family and emotional support from friends had a positive effect on self-care agency which is consistent with the theory and earlier studies (Jirovic & Kasno, 1990; Rew, 1987). However, emotional support from family and friends did not have a positive effect on contraceptive practice which is inconsistent with the theory and earlier studies (Henson, 1992; Kaster, 1984; Peach, 1980) which reported differences in contraceptive practice between those perceiving emotional support from family and friends and those who did not. The main difference with this study is that the 19 year olds were included in the sample of earlier studies. Therefore the younger group only sample may have influenced the results.

Self-care Agency

Self-care agency did not have a positive effect on contraceptive practice which too is inconsistent with the self-care deficit theory and earlier studies (Denyes, 1988; Davidson, 1988; Lakin, 1988; Burns, 1985) which reported relationship to self-care activities. The only difference with this study was the inclusion of 19 year olds and that self-care activities tested did not refer
to contraceptive practice in particular. Therefore both
the younger age group used in this study and
contraceptive practice as the nature of self-care
activities tested may have influenced the results.

Health Promotion Model Research

The self-care deficit theory as tested in this study
provides many ideas for further health promotion model
contraceptive practice research. The suggestions include:
1. Refining the measure for contraceptive practice to
reduce the possibility for socially acceptable responses
in that population.
2. Using other teenagers as data collectors to determine
if the theory is supported.
3. Using sample from more than one site to determine if
the theory is supported.
4. Undertaking data collection outside hospital
environment to determine if the theory is supported.
5. Including the 19 year olds in the sample to determine
if the theory is supported.
6. A qualitative research to determine unmarried teenage
primiparas’ perception of their contraceptive practice
with reference to self-care.
7. A longitudinal study to determine the influence of
emotional support from friends and family, and self-care
agency over time.
Community Health Nursing Practice And Research

The study and this particular sample support the need for community health nurses to consider encouraging emotional support from family and friends to promote self-care agency in unmarried teenage primiparas. However, further replication of the study is necessary using samples from a larger location. Community health nurses should be cautious about encouraging emotional support from family and friends, and self-care agency to promote contraceptive practice in unmarried teenage primiparas 18 years and younger. Further research is required to determine if the self-care deficit theory is supported with reference to contraceptive practice in that population.

Limitations

The limitation of the study is that, only direct effects could be determined. The indirect effects could not be determined because of categorical nature of the dependent variable data and multiple logistic regression analysis that was used. In addition the design that is used with the measures being taken at one point in time will only allow determination of association but not causality. A longitudinal study of the same subjects over two years would provide more information including changes over time.
Summary

The problem of teenage pregnancy is increasing (National Center for Health Statistics, 1990) and so is that of repeated pregnancy among unmarried teenage primiparas (Adams, McAnarney, Penzarine, Tuttle, 1990). Evidence exists of health (Davidson, Gibbs & Chapin, 1991) and social (Davidson & Khan, 1986) problems of repeated pregnancies and yet unmarried teenage primiparas do not engage in contraceptive practice.

A cross-sectional design was used to test a health promotion model for contraceptive practice in a random sample of 75 unmarried teenage primiparas 18 years and younger and basing on Orem self-care deficit theory. The health promotion model provides linkages for emotional support from family and friends basic conditioning factors, self-care agency, and engagement in contraceptive practice.

Multiple regression analysis and multiple logistic regression analysis were used. Both emotional support from family and friends had positive effect on self-care agency. However emotional support from family and friends as basic conditioning factor and self-care agency did not have a positive effect on contraceptive practice.
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Appendix A

A PERSONAL DATA QUESTIONNAIRE

Please fill in the blanks or circle the appropriate answers.

1. Your date of birth. MM/DD/YY _____/_____/

2. Your racial or ethnic identity.
   a. White, Not of Hispanic Origin
   b. Black, Not of Hispanic Origin
   c. American Indian or Alaskan Native
   d. Asian or Pacific Islander
   e. Hispanic
   f. Other: Specify _____________

3. Date of birth of your child. MM/DD/YY _____/_____/

4. With whom do you live?
   a. Alone (or with child)
   b. Own mother
   c. Own father
   d. Own mother and father
   e. Other relatives
   f. Friends
   g. Other: specify _____________

5. What was the last year of school you completed?
   Less than 7 years of school............a
   Junior high school....................b
   Some high school.....................c
   Graduated high school.................d
   Some college.........................e
   Graduated from college...............f

6. Are you presently a student, employed, or unemployed?
   Student...........a
   Employed........b
   Unemployed.......c
   Other: specify _______________
7. What is your main source of current financial support?
   a. Own job
   b. Public assistance
   c. Other: specify _______________________

8. Given these amounts of total annual or monthly income, whichever is the easiest for you to remember, please circle the letter that matches the income your household receives before taxes.

   **YEARLY**                              **MONTHLY**
   a.  0 - $1,999                           0 - $166
   b.  $2,000 - $2,999                      $167 - $249
   c.  $3,000 - $3,999                      $250 - $333
   d.  $4,000 - $4,999                      $334 - $416
   e.  $5,000 - $6,999                      $417 - $583
   f.  $7,000 - $9,999                      $584 - $833
   g.  $10,000 - $14,999                    $834 - $1,249
   h.  $15,000 - $19,999                    $1,250 - $1,666
   i.  $20,000 - $29,999                    $1,667 - $2,499
   j.  $30,000 - $39,999                    $2,500 - $3,333
   k.  $40,000 or more                     $3,334 or more
   l.  Don’t know

9. How well does the amount of money you have take care of your needs?

   Very well...........a
   Fairly well.........b
   Poorly.............c

10. Do you usually have enough to buy those little "extras" that is, those small luxuries?

    Yes........a
    No.......b
Appendix B

PERCEIVED SOCIAL SUPPORT FROM FAMILY (PSS-Fa) SCALE

The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with their families. For each statement there are three possible answers: "yes", "no", "don’t know". Please check (/) the answer you choose for each item.

1. My family gives me the moral support I need.
   _____ yes
   _____ no
   _____ don’t know

2. I get good ideas about how to do things from my family.
   _____ yes
   _____ no
   _____ don’t know

3. Most other people are closer to their family than I am.
   _____ yes
   _____ no
   _____ don’t know

4. When I confide in the members of my family who are closest to me, I get the idea that it makes them uncomfortable.
   _____ yes
   _____ no
   _____ don’t know

5. My family enjoys hearing about what I think.
   _____ yes
   _____ no
   _____ don’t know

6. Members of my family share many of my interests.
   _____ yes
   _____ no
   _____ don’t know
7. Certain members of my family come to me when they have problems or need advice.

- yes
- no
- don’t know

8. I rely on my family for emotional support.

- yes
- no
- don’t know

9. There is a member of my family I could go to if I were just feeling down, without feeling funny about it later.

- yes
- no
- don’t know

10. My family and I are very open about what we think about things.

- yes
- no
- don’t know

11. My family is sensitive to my personal needs.

- yes
- no
- don’t know

12. Members of my family come to me for emotional support.

- yes
- no
- don’t know

13. Members of my family are good at helping me solve problems.

- yes
- no
- don’t know
14. I have a deep sharing relationship with a number of members of my family.

   _____ yes
   _____ no
   _____ don’t know

15. Members of my family get good ideas about how to do things or make things from me.

   _____ yes
   _____ no
   _____ don’t know

16. When I confide in members of my family, it makes me uncomfortable.

   _____ yes
   _____ no
   _____ don’t know

17. Members of my family seek me out for companionship.

   _____ yes
   _____ no
   _____ don’t know

18. I think that my family feels that I’m good at helping them solve problems.

   _____ yes
   _____ no
   _____ don’t know

19. I don’t have a relationship with a member of my family that is as close as other people’s relationships with family members.

   _____ yes
   _____ no
   _____ don’t know

20. I wish my family were much different.

   _____ yes
   _____ no
   _____ don’t know
Appendix C

PERCEIVED SOCIAL SUPPORT FROM FRIENDS (PSS-Fr) SCALE

The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends. For each statement there are three possible answers: "yes", "no", "don’t know". Please check (/) the answer you choose for each item.

1. My friends give me the moral support I need.
   ___ yes
   ___ no
   ___ don’t know

2. Most other people are closer to their friends than I am.
   ___ yes
   ___ no
   ___ don’t know

   ___ yes
   ___ no
   ___ don’t know

4. Certain friends come to me when they have problems or need advice.
   ___ yes
   ___ no
   ___ don’t know

5. I rely on my friends for emotional support.
   ___ yes
   ___ no
   ___ don’t know

6. If I felt that one or more of my friends were upset with me, I’d just keep it to myself.
   ___ yes
   ___ no
   ___ don’t know
7. I feel that I'm on the fringe in my circle of friends.
   _____yes  
   _____no  
   _____don't know

8. There is a friend I could go to if I were just feeling down, without feeling funny about it later.
   _____yes  
   _____no  
   _____don't know

9. My friends and I are very open about what we think about things.
   _____yes  
   _____no  
   _____don't know

10. My friends are sensitive to my personal needs.
    _____yes  
    _____no  
    _____don't know

11. My friends come to me for emotional support.
    _____yes  
    _____no  
    _____don't know

12. My friends are good at helping me solve problems.
    _____yes  
    _____no  
    _____don't know

13. I have a deep sharing relationship with a number of friends.
    _____yes  
    _____no  
    _____don't know
14. My friends get good ideas about how to do things or make things from me.
   ____ yes
   ____ no
   ____ don’t know

15. When I confide in friends, it makes me feel uncomfortable.
   ____ yes
   ____ no
   ____ don’t know

16. My friends seek me out for companionship.
   ____ yes
   ____ no
   ____ don’t know

17. I think that my friends feel that I’m good at helping them solve problems.
   ____ yes
   ____ no
   ____ don’t know

18. I don’t have a relationship with a friend that is as intimate as other people’s relationships with friends.
   ____ yes
   ____ no
   ____ don’t know

19. I’ve recently gotten a good idea about how to do something from a friend.
   ____ yes
   ____ no
   ____ don’t know

20. I wish my friends were much different.
   ____ yes
   ____ no
   ____ don’t know
Appendix D

EXERCISE OF SELF-CARE AGENCY (ESCA) SCALE

This is not a test with right and wrong answers. The statements which follow refer to a variety of aspects of people. For each item there are five possible answers. Please check (/) the answer you choose for each item.

1. I would gladly give up some of my set ways if it meant improving my health.

   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

2. I like myself.

   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

3. I often feel that I lack the energy to care for my health needs the way I would like to.

   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

4. I know how to get the facts I need when my health feels weakened.

   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.
5. I take pride in doing the things I need to do in order to remain healthy.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

6. I tend to neglect my personal needs.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

7. I know my strong and weak points.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

8. I seek help when unable to care for myself.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

9. I enjoy starting new projects.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

10. I often put off doing things that I know would be good for me.
    ___ very much like me.
    ___ somewhat like me.
    ___ no opinion
    ___ somewhat unlike me.
    ___ very much unlike me.
11. I usually try home remedies that have worked in the past rather than going to see a doctor or nurse for help.

   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

12. I make my own decisions.

   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

13. I perform certain activities to keep from getting sick.

   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

14. I strive to better myself.

   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

15. I eat a balanced diet.

   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.
16. I complain a lot about the things that bother me without doing much about it.

- very much like me.
- somewhat like me.
- no opinion
- somewhat unlike me.
- very much unlike me.

17. I look for better ways to look after my health.

- very much like me.
- somewhat like me.
- no opinion
- somewhat unlike me.
- very much unlike me.

18. I expect to reach my peak wellness.

- very much like me.
- somewhat like me.
- no opinion
- somewhat unlike me.
- very much unlike me.

19. When I have a problem, I usually want an expert to tell me what to do.

- very much like me.
- somewhat like me.
- no opinion
- somewhat unlike me.
- very much unlike me.

20. I deserve all the time and care it takes to maintain my health.

- very much like me.
- somewhat like me.
- no opinion
- somewhat unlike me.
- very much unlike me.
21. I follow through on my decisions.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

22. I have no interest in learning about my body and how it functions.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

23. If I am not good to myself, I believe I cannot be good for anyone else.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

24. I understand my body and how it functions.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

25. I rarely carry out the decisions I make concerning my health.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.
26. I am a good friend to myself.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

27. I take good care of myself.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

28. Taking activities to improve my health just happen by chance for me.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

29. I have a planned program for rest and exercise.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

30. I am interested in learning about various disease processes and how they affect me.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

31. Life is a joy.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.
32. I do not contribute to my family's functioning.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

33. I take responsibility for my own actions.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

34. I have little to contribute to others.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

35. I can usually tell that I am coming down with something days before I get sick.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

36. Over the years I noticed the things to do that make me feel better.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.

37. I know what foods to eat and keep me healthy.
   ___ very much like me.
   ___ somewhat like me.
   ___ no opinion
   ___ somewhat unlike me.
   ___ very much unlike me.
38. I am interested in learning all that I can about my body and the way it functions.
   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

39. Sometimes when I feel sick I ignore the feeling and hope it goes away.
   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

40. I seek information to care for myself.
   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

41. I feel I am a valuable member of my family.
   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.

42. I remember when I had my last health check and return on time for my next one.
   ____ very much like me.
   ____ somewhat like me.
   ____ no opinion
   ____ somewhat unlike me.
   ____ very much unlike me.
43. I understand myself and my needs pretty well.

___ very much like me.
___ somewhat like me.
___ no opinion
___ somewhat unlike me.
___ very much unlike me.
Appendix E

CONTRACEPTIVE PRACTICE QUESTIONNAIRE

Please circle the appropriate answers as they apply to you SINCE THE BIRTH OF YOUR CHILD.

1. Are you sexually active?

   Yes.......a
   No.......b

   IF YOU ARE NOT SEXUALLY ACTIVE PLEASE GO TO 6

2. If you are sexually active, how often do you and your partner use a birth control method?

   Never.............a
   Almost never.......b
   Sometimes.........c
   Almost every time....d
   Every time..........e

   IF YOU AND YOUR PARTNER ARE NOT USING A BIRTH CONTROL METHOD PLEASE GO TO 4

3. If you and your partner are using a birth control method, which method are you using?

   Condoms.........................a
   Foam..............................b
   Condoms and foam together.....c
   Birth control pills.............d
   Contraceptive sponge..........e
   IUD...............................f
   Rhythm ("safe time").........g
   Withdrawal (pulling out).....h
   Other _______________________

   IF YOU AND YOUR PARTNER ARE USING A BIRTH CONTROL METHOD PLEASE SKIP 4, 5 & 6

4. If you and your partner are not using a birth control method, are you planning to have a baby?

   Yes.......a
   No.......b
5. If you are planning to have a baby, how soon would you like to have a baby?

[_________ months  _______ years]

IF YOU ARE PLANNING TO HAVE A BABY PLEASE SKIP 6

6. If you are not sexually active, is preventing pregnancy your main reason?

Yes..........a
No..........b
Appendix F

EXPLANATION OF THE STUDY

Hello, Ms. _______________, my name is Kudakwashe Mapanga. I am a doctoral candidate at Case Western Reserve University.

I am conducting a study of the personal situation of SINGLE FIRST TIME MOTHERS, 18 YEARS AND YOUNGER. I am asking you if you can help by answering a questionnaire that will take about thirty minutes of your time.

The questionnaire involves you answering questions about yourself and your feelings. You DO NOT put your name on the form. I want the information to be confidential so that no one will know how you have answered.

Your answering of the questionnaire is voluntary and you can stop completing it at any time. Refusal to answer the questionnaire will not affect your health care or that of your child.

I will be around to answer any questions that you may have regarding the questionnaire. The project does not involve any risk to you or your child.

You will receive $5 for your time IF YOU ANSWER ALL QUESTIONS. Would you be willing to fill out the questionnaire?