THE RELATIONSHIP BETWEEN SELF-CARE AGENCY, SELF-CARE, AND HEALTH IN THE PREGNANT ADOLESCENT

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BY

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DENTON, TEXAS

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November 5, 1991
Date

To the Dean for Graduate Studies and Research:

I am submitting herewith a dissertation written by Dorothy Hood Stonebraker entitled "The Relationship Between Self-Care Agency, Self-Care, and Health in the Pregnant Adolescent." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing.

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We have read this dissertation and recommend its acceptance:

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Accepted

Leslie M Thompson
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DEDICATION

This work is dedicated to the memory of my father,

Dr. Jennings Sudler Hood.

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This process has broadened my understanding of myself and my profession. I hope I can convey some of this knowledge to my students in the years ahead.

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ABSTRACT

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A descriptive, correlational design was used to determine the relationship between basic conditioning factors, self-care agency, self-care, and health in pregnant adolescents, 14-19 years. Prenatal adolescent clinics at two research sites were used to select 100 volunteer adolescents by convenience nonprobability sampling. The mean age of the adolescents in this study was 17.48 years; half (50%) of the sample was black and 78 (78.8%) were single. Most of the adolescents attended school (60; 60.6%) and did not have jobs (86; 86%). The family income was low with 41 (46.7%) indicating a monthly income of less than $999. The minimal educational level was the 6th grade. Instruments included a Demographic Data Sheet and the Denyes Self-Care Agency, Self-Care Practice, and Health Status Instruments. No significant correlations were found between selected basic conditioning factors (e.g., age, birth order,

siblings, marital status, and ethnicity) and self-care. A significant positive correlation was found between self-care agency and self-care (r = .7648, $p \leq .001$) as well as between self-care and health (r = .7650, $p \leq .001$). Results of a multiple regression analysis revealed that two subscales of self-care agency (ego strength and health decision-making capability; and attention to health) accounted for 59% of the variance in self-care. Together self-care agency and self-care accounted for 61% of the variance in health.

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CHAPTER 1

INTRODUCTION

Adolescent pregnancy continues to be one persistent and poignant problem facing society. Annually, more than 1.1 million, or 11%, of all female adolescents in the United States become pregnant which results in 3,000 pregnancies a day and approximately 700,000 live births a year (Alan Guttmacher Institute, 1981). In 1983, the number of births to teens was just under one-half million (499,038), which accounted for almost 14% of all births. These data mean that adolescents in the United States now bear and rear about one out of every six children (Califano, 1980). Adolescent women account for 28% of all abortions and 19% of fetal deaths in this country (Henshaw, Kenney, Somberg, & Van Vort, 1989). Most teenage pregnancies in the United States are unintended, and one-third of all teen mothers will experience a subsequent pregnancy while still in their teens. The consequences of adolescent pregnancy are significant. Historically, teens have experienced higher risk factors for low birthweight infants, infant mortality, inadequate or no prenatal care, school incompletion, and economic insufficiency (Haggstom, Blaschke, Kanouse,

Lisowski, & Morrison, 1981; McAnarney & Greydanus, 1989; Mott & Marsiglio, 1985).

Both society and adolescents themselves expect that they are capable of and should be assuming increasing responsibility for their own health. Despite concerns about personal health, adolescents do not behave in ways congruent with these expressed concerns (Merrit, Lawrence, & Naeye, 1980). However, some pregnant adolescents smoke fewer cigarettes, use fewer psychoactive drugs and drink less alcohol than older mothers (Zuckerman et al., 1983). As a group, pregnant adolescents enter prenatal care later than older women and suffer more gonococcal infections during pregnancy (Zuckerman et al., 1983).

These findings are especially significant because there is growing recognition that a preponderance of health care in this country is provided not by professionals, but by individuals and their families. The professionals' role of assisting people in their pursuit of health is an important one and often an essential one, yet the individual remains the primary health-care agent (Denyes, 1980). The promotion of health is dependent upon the power or agency of individuals to engage in their own self-care. Orem (1985) identified basic conditioning factors which may contribute to the individual's ability to carry out self-care. The

conditioning factors include age, developmental state, conditions of living, family system factors, sociocultural orientation, patterns of living, health state and health care system factors (Orem, 1985).

There is empirical evidence suggesting that health is promoted as self-care agency and self-care is enhanced. Since self-care "contributes in specific ways to human structural integrity, human functioning, and human development" (Orem, 1985, p. 75), health as a state of wholeness or soundness should be an outcome or goal of self-care.

Inherent in Orem's work is the position that individuals are agents of their own care. Adolescents possess the potential to engage in self-care. However, while adolescents express interest in their health, risk taking health practices are not unusual in this age group. The most significant finding in health statistics worldwide with respect to adolescent health status is the extraordinary importance of risk-taking behavior which contributes to the total burden of illness among the young. Impressive gains in adolescent health and a firm basis for reducing adult morbidity and mortality may be achieved through a greater understanding of effective ways to change adolescents' behavior to the promotion of health and the prevention of disease (Feldman & Elliott, 1990).

While Orem's general theory of nursing has been extensively used to direct practice and research, there has been little exploration of its use in health promotion (Denyes, 1988). This research study was designed to examine the relationships between Orem's concepts of basic conditioning factors, self-care agency, self-care and health in the pregnant adolescent. A dissertation search as well as a review of the literature to 1966 revealed no published works in which researchers have studied this population using Orem's framework.

Problem of Study

Adolescence is described as the first barrier to health promotion (Coates, Peterson, & Perry, 1982). It is a time when inconsistent self-care is not unusual (Zuckerman et al., 1983). While adolescence is a peak period for health as measured by traditional indicators of mortality and morbidity, the initiation of risk taking behaviors may lead to premature disease and death (Millstein & Litt, 1990). It is important to identify the parameters that may affect the pregnant adolescent's self-care and health within Orem's theoretical framework. Therefore, this study was designed to describe the relationship between basic conditioning

factors, self-care agency, self-care, and health in pregnant adolescents, ages 11-19 years.

Rationale for Study

Davis (1989) stated that if the current trend in adolescent pregnancy continues, 40% of all 14-year-old girls will become pregnant before their 20th birthday. According to the National Center for Health Statistics (1981), there has been a 22% increase in pregnancy for girls 10-14 years old--from 0.9 per 1,000 in 1966 to 1.1 per 1,000 in 1980. This increase occurred at a time when the birth rate for older adolescents (15-19 years) decreased. These births impose a heavy medical, developmental, and social burden on adolescents, their infants, and society. In 1986, the Center for Population Options estimated that adolescent childbearing cost the United States approximately 16.65 billion dollars in 1985. The cost of raising the first born child of an adolescent mother to 20 years of age will be $15,620 per taxpayer (Stockard, 1986). In 1985, approximately 4.65 billion dollars was spent through Aid to Dependent Children (ADC) for households headed by women who become parents as adolescents. The younger a woman is when her first child is born, the greater the likelihood that she

will be unable to support herself and her family and will require welfare (McAnarney & Greydanus, 1989).

Teenage pregnancy is expensive in economic, health, and social terms. For the adolescent having her first infant, there is increased morbidity, and in subsequent years, less education, larger family size and welfare dependence (Furstenberg, Brooks-Gunn, & Chase-Landsdale, 1989; Mott & Marsiglio, 1985). According to the March of Dimes Birth Defects Foundation, the adolescent mother is more likely to be undernourished and suffer premature or prolonged labor, pregnancy-induced hypertension, placenta previa, diabetes, postpartum hemorrhage, and vaginal infections (Stockard, 1986).

National data reveal that only about one half of all pregnant teens who give birth receive prenatal care in the first trimester of pregnancy (National Center for Health Statistics, 1987). By some estimates, only 20% of pregnant girls under 15 receive any prenatal care during pregnancy. Consequently, these girls are 92% more likely to have anemia and 23% more likely to have complications related to prematurity than are women who are between the ages of 20 and 24 years (Garn & Petzoid, 1983).

According to Jessor (1977), one of the clearest facts to have emerged from the past decade of research is the

substantial covariation among many health-related behaviors. More than one poor self-care practice tends to occur within the same adolescent. As a result, not only do problem or health-damaging behaviors tend to be concurrent, but the practice of one behavior such as smoking or alcohol use appears to be associated with the likelihood of initiating the practice of another. The occurrence of pregnancy in early adolescence may identify young women whose lifestyles could jeopardize infant outcomes. Precocious sexual activity may be related to "other non-optimal behavior associated with adverse neonatal outcome, such as alcohol, tobacco and psychoactive drug use, poor diet and poor compliance with health care" (Zuckerman, Walker, Frank, Chase, & Hamburg, 1984, p. 24).

In the United States, adolescents are the only age group whose mortality rates are rising (U.S. Department of Health and Human Services [DHHS], 1980). The research related to health behaviors of children and adolescents is not described as well as research related to adult health behaviors. A lack of definition and the inconsistent measurement of health behaviors in adolescents have hindered the clarification of adolescent health behavior (Kulbok, Earls, & Montgomery, 1988).

Denyes (1980) suggested that the ability to identify the strengths and/or limitations in self-care agency among adolescents would enable nurses to design care that would assist adolescents (1) to protect, exercise, and/or further develop their strengths in self-care agency and self care and (2) to compensate for, overcome, or prevent the accentuation and/or new development of limitations in self-care agency. Assessment of adolescent self-care agency may enable the health professional and the adolescent to mutually evaluate self-care changes.

Conceptual Framework

The model used in this study was Orem's (1985) general theory of nursing. Orem's conceptual model of nursing has been used extensively to direct practice and research. However, there has been little exploration of the model's utility in health promotion. There is empirical evidence suggesting that where health is promoted, self-care agency and self-care are enhanced (Denyes, 1988). The purpose of this research was to describe the relationship between basic conditioning factors, self-care agency, self-care, and health in the pregnant adolescent.

The Nursing Development Conference Group (NDCG) (1973) defined self-care as "the actions based on culturally or

scientifically derived practices by individuals (or their agents) directed to themselves or to conditions or objects in their environments in the interests of their own life, health or well being" (p. 86). Self-care activities require the ability or "power" to: (1) attend to, and exclude, specific things; (2) understand the need for change; (3) acquire knowledge; (4) make decisions; and (5) achieve change or regulation. Any internal or external parameters which interfere with individuals' ability to think, judge, or make decisions about their health care will result in their inability to engage in self-care activities and will result in a self-care deficit (Orem, 1985).

Self-care requires self-care agency. Self-care agency is "the power of an individual to engage in the estimative and production operations essential for self-care. It is a complex, acquired quality that is described in terms of abilities and limitations" (NDCG, 1979, p. 65). Recently, Orem (1985) identified three abilities which comprise self-care agency. These abilities are: "1) foundational abilities which consist of basic abilities pertaining to sensation, perception, memory and orientation; 2) power components which are repertories of self-care skills; and, 3) the abilities necessary to perform what Orem refers to as self-care operations" (NDCG, 1979, p. 122). Orem proposed a

relationship between self-care agency and the ability to perform self-care. Self-care agency is activated by the "experiencing of a demand to attend to oneself" (NDCG, 1973, p. 88). These demands are called therapeutic self-care demands which are conceptualized in terms of three types of action requirements. The first action requirement is universal self-care requirements. This type is experienced by individuals all of the time (i.e., one related to basic human functioning). The second action requirement is developmental self-care requirements which "comprise the maintenance of conditions to support life process and human development" (Orem, 1985, p. 53). The third action requirement is health deviation self-care requirements which occurs only in the event of injury, disease, or exposure to noxious agents (Orem, 1985). For the purpose of this study, only universal self-care demands were examined in relation to self-care agency, self-care practices, and health.

Universal self-care can be modified by various individual, familial, sociocultural, and health factors which Orem (1985) has labeled as basic conditioning factors. Specifically, basic conditioning factors are numerous factors that potentially influence one's ability to carry out self-care. These factors include age, sex, developmental state, conditions of living, family system factors,

sociocultural orientation, patterns of living, health state and health care system factors.

Health is described by Orem (1985) as the human state of being whole or sound, characterized by "functional and structural integrity . . . and progressive integrated development of a human being as an individual unity moving toward higher and higher levels of integration" (p. 76). It is postulated that health is a state of wholeness or soundness and is an outcome or goal of self-care, particularly of self-care directed toward universal requisites.

While Orem's (1985) framework has been used to direct practice and research in nursing, the relationship between self-care agency, self-care, and health had not been reported among pregnant adolescents. Therefore the analysis of health behavior among pregnant adolescents using Orem's general nursing theory may enable the health professional to identify the strengths and weaknesses of self-care agency and self-care within this group. This assessment will assist the health professional to design interventions that focus on this group's health needs.

Assumptions

The following assumptions from Orem's (1985) conceptual framework which guided this study include:

1. Self-care is based on voluntary action which humans are capable of undertaking.
2. Self-care is based on deliberate and thoughtful judgement that leads to appropriate action.
3. Self-care is behavior that evolves through a combination of social and cognitive experiences and is learned through one's interpersonal relationships, communication, and culture.
4. Human agency, the power to act deliberately, is exercised in the form of care of self and others.

Research Questions

The research questions investigated in this study were as follows:

1. What is the relationship between selected basic conditioning factors (e.g., age, number of siblings, birth order, martial status, ethnicity) and self-care of the pregnant adolescent?
2. What is the relationship between self-care agency of the pregnant adolescent and self-care?
3. What is the relationship between self-care of the pregnant adolescent and health?

Definition of Terms

The following theoretical and operational definitions were employed in this study.

1. Self-care agency: "the complex capability for action that is activated in the performance of the actions or operations of self care" (Orem, 1985, p. 33). In this study, self-care agency was represented by a total score on the Denyes' Self-Care Agency Instrument (DSCAI). Also used to further analyze this concept were the six subscales of Denyes' (1980) Self-Care Agency Instrument: SCA1 (ego strength and health-decision making capability), SCA2 (relative valuing of health), SCA3 (health knowledge and decision-making experience), SCA4 (physical energy levels), SCA5 (feelings), and SCA6 (attention to health).
2. Self-care: "the production of actions directed toward oneself and environment in order to regulate one's functioning in the interest of one's life" (Orem, 1985, p. 40). Self-care in this study was represented by a total score on the Denyes Self-Care Practice Instrument (DSCPI) (Denyes, 1980).
3. Health: the "functional and structural integrity and progressive integrated development of a human being as an individual unity moving toward higher and higher

levels of integration" (Orem, 1985, p. 52). In this study, health was represented by a total score on the Denyes Health-Status Instrument (DHSI) (Denyes, 1980).

4. Pregnant adolescent: a pregnant female between the ages of 11 and 19 years without Class D or higher diabetes, pregnancy induced hypertension, Type III or higher heart disease or any diagnosed psychiatric disorder.
5. Basic conditioning factors: factors that potentially influence one's ability to carry out self-care (Orem, 1985). For the purpose of this study, basic conditioning factors were responses to questions on the Demographic Data Sheet pertaining to the following: age, educational level, socioeconomic level, family system and ethnicity.

Limitations

One of the limitations of the study was that proficiency in English and reading was required because all the questionnaires were written in English. This requirement resulted in a sample not representative of the entire population of pregnant adolescents who attended the clinics. Nonprobability, convenience sampling was used which limits generalization of results to the sample.

Summary

The purpose of this study was to describe, in pregnant adolescents, the relationship between basic conditioning factors, self-care agency, self-care, and health as defined in Orem's (1985) model. While the relationships of some concepts of Orem's model have been described and correlated in previous studies (Denyes, 1988; Frey & Denyes, 1989), the relationships between self-care agency, self-care and health had not been examined among pregnant adolescents. Describing the relationship of these concepts will assist health professionals, especially nurses, to provide specific interventions that promote health behaviors in adolescents.

CHAPTER 2

REVIEW OF LITERATURE

The existing studies and related literature on self-care, self-care agency, health, adolescence, and adolescent pregnancy are discussed in this chapter. The discussion on self-care includes definitions, a historical overview, and a synopsis of related research. The discussion on self-care agency includes definitions, a review of related research, and the development and analysis of instruments used to measure this concept. The discussion on health includes several definitions of this concept and a brief review of related research. The discussion on adolescence includes a brief dialogue on the physiological, psychosocial, and moral development of teenagers. Adolescent health is briefly discussed in relation to educational performance, family relationships, and general lifestyles. The section on adolescent pregnancy includes a discussion of the incidence as well as the relationship between biological, psychosocial, and economic risk factors and maternal outcomes.

Self-Care

In 1987, the Self-Care Institute (SCI) convened an interdisciplinary panel of 15 experts on self-care with the goal of reviewing self-care literature and programs in six disciplines (medicine, nursing, psychology, health education, sociology, public health, business administration and insurance). The purpose of the Institute was to assist scholars interested in self-care to be aware of common themes and differences in how self-care was conceptualized in a variety of disciplines. The panel concluded that each discipline used research methods and self-care terminology specific to its orientation. Within the six disciplines, self-care has been described as a movement, concept, framework, model, theory, process, and phenomenon. The panel found that many related bodies of self-care knowledge existed but no common terminology was used. This finding led Gantz (1990) to state that, concerning self-care, "generalizability is unknown, and a review of relevant literature is virtually impossible" (p. 2).

The panel of experts from each discipline did however agree upon the following self-care characteristics.

> "The concept (of self-care) is situation and culture specific; involves the capacity to act and to make choices; is influenced by knowledge, skills, values, motivation, locus of control, and efficacy; and focuses on aspects of health care under individual control (as

> opposed to social policy or legislation." (Gantz, 1990, p. 2).

In medical and nursing literature, self-care has been defined in a variety of ways. Caporael-Katz (1980) defined self-care as "activities that an individual undertakes whereby a lay person functions on his own behalf in health promotion and prevention and in disease detection and treatment at the level of the primary health resource in the health care system" (p. 11). Levin (1978) stated that self-care "is a process whereby a lay person functions on his own behalf in health promotion and prevention and in disease detection and treatment" (p. 170). Orem (1971) defined self-care as "the practice of activities that individuals personally initiate and perform on their own behalf in maintaining life, health, and well-being" (p. 13). Mullin (1980) stated that self-care arises from the recognition and acceptance of the fact that individual's are responsible for their own health. All these definitions have similar underlying premises: "that self-care is a voluntary, self-limited, universal, varying complex of behaviors evolved through a mixture of socializing and cognitive experiences" (Levin, Katz, & Holst, 1979, p. 11).

The goal of self-care is to empower individuals to assume control of their own health. Self-care is a

decision-making process which involves "self-observation, symptom perception and labeling, judgment of severity and choice and assessment of treatment" (Levin et al., 1979, p. 11). Similarly, Chang (1980) stated that a variety of roles form part of self-care including self-diagnosis, disease prevention, health maintenance, self-treatment, self-medication and participation in the use of professional services. Orem (1985) stated that "self-care requires the ability to attend to, and exclude specific things; understand the need for change; acquire knowledge; make decisions and achieve change or regulation" (p. 113). Essentially, self-care is the persons' continuous contribution to their own health (Joseph, 1980).

Historical Review

People's perceptions of health and illness and the focus of accountability for health care has changed throughout history, and they are related to the dominant philosophy of the society present at the time, in addition to the organization of the medical system (Steiger & Lipson, 1985). With the exception of Hand (1976) and Risse, Numbers, and Levitt (1977), there was minimal published literature regarding the traditions of lay health care in the United States (Steiger & Lipson, 1985). History shows

that self-care has not been limited to middle-class groups, rather, self-care by indigenous healers has been the norm in many cultures, with only the elite receiving services by professional health personnel. Primitive people believed that illness was caused by supernatural forces that required magical interventions. These interventions were primarily the responsibility of the shaman, medicine man, or faith healer of the society. However, the individual and family also played a major role in administering these interventions. Early healers taught people seeking help to use a variety of medicinal measures to care for themselves. These measures included beads, herbs, oils, relationships, mineral baths, sleep and dreams, music, and statuary (Hill & Smith, 1985).

Historically, self-care has slowly evolved over the last 200 years. Early American history of health care, similar to European health care during the 17th to 19th centuries, involved formally educated physicians treating mainly middle and upper class patients who could afford their services (Ehrenreich & English, 1973). Midwives, lay practitioners, and "empiric" doctors cared for the remaining population. During this time American philosophy "began to emphasize the possibility of social change through individual responsibility, which acted as a catalyst for the

'popular health movement'" (Risse et al., 1977, p. 21). During the 1830s and 1840s, the popular health movement reached a peak. This movement was based on the conviction each person was responsible for their health. Forces which stimulated this movement included the belief that human beings could control their own destinies, a rising standard of living, scientific technological progress, the popular use of patented medicines, and the publication of a number of self-care books (Steiger & Lipson, 1985).

Toward the end of the 19th century, the "popular health movement" began to decline as urbanization took place. Following the Flexner Report in 1910, which clearly demonstrated that many physicians were poorly trained (King, 1984), many medical, sectarian, and women's schools were closed. This movement established medical education within universities which made it accessible only through lengthy and expensive training (Ehrenreich & English, 1973). Medical schools were reformed, and states began developing requirements for licensure (Wolinsky, 1980). As medical interventions became highly regarded and valued, self-care became devalued, and people were not encouraged or taught to evaluate their own health status or to care for themselves and their families (Steiger & Lipson, 1985). Numerous health care providers regarded self-care as folk practices

to be avoided or deplored in the wake of modern medicine. They felt that these practices contributed to the failure of lay persons to comply with prescribed medical regimens (Levin et al., 1979).

Not until the 1960s when certain diseases were linked to lifestyle did people again begin to purposefully engage in self-care activities. The Forward Plan for Health: 1975-81 was published by the U.S. Department of Health, Education and Welfare (1975), and it contained a definition of the health care needs of the American people. In this publication, lifestyle as well as psychosocial factors were identified as influencing morbidity and mortality among the American people. Four years later, Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (1979) established a broad set of national goals for improving the health habits of Americans by 1990. Healthy People was based on "the realization that major health gains throughout the rest of the century would result more from advances in nutrition, physical fitness, personal life styles, immunizations and environmental modification than from traditional medical care" (Pender & Pender, 1987, p. 1). The authors of this report predicted that the use of self-care activities could lead to a 25-30% reduction in morbidity and mortality.

Levin et al. (1979, p. 20) have identified several factors which influenced the rising interest in self-care. These factors include the following:

1. The "demystification" of primary medical care.
2. Consumerism and popular demands for increased self control related to anti-technology, antiauthority sentiments.
3. Changes in life-style and rising educational levels.
4. Lay concern with regard to perceived abuses in medical care.
5. The lack of availability of professional services.

Since World War II, cultural changes have occurred which have further influenced the self-care movement. These changes include "shifting values, greater non-conformity and less commitment to traditional roles in the population, concern with personal independence in decision making and changes in traditional sex roles" (Levin et al., 1979, p. 20). Overall, such life-style changes seem to have provided a psychosocial milieu compatible with self-care ideas. It has been speculated that increased assumption of self-care responsibility might contribute to building self-assurance and an improved self concept; to reducing dependence on social institutions; to increasing family

cohesiveness; and to renewed emphasis on health behaviors in a broad context of societal priorities (Levin et al., 1979).

Changes in the distribution of medical service, the high cost of traditional medical care, and the more open distribution of medical knowledge have aided the current self-care movement. In 1980, Toffler stated that consumers are no longer passive recipients of health care, but rather active consumers. As "prosumers" (Toffler, 1980, p. 146) of medical care, individuals take preventive action by monitoring their own physical and emotional health.

In Power Shift (1990), Toffler stated that medical knowledge was no longer controlled by the medical profession, rather the consumer was capable of accessing enormous amounts of medical knowledge with relative ease. Medicine has been criticized for exerting excessive control over people's lives (Ehrenreich & English, 1973; Zola, 1972), particularly though, control of the source of power-information (Danziger, 1978; Quint, 1978). The power balance has also changed as female consumers have obtained knowledge, demystified medical care, and gained power in health care decisions (Lopata, 1979).

Self-care within the women's health movement first became evident during the 1970s. This social movement included the education of women about their bodies and their

rights as health care consumers (Ferris, 1982; Marieskind, 1980). As women became more knowledgeable about child-bearing, they began to question obstetrical health care practices and to demand changes in available health care services. In addition, women began to insist on the right to actively participate in the overall childbearing experience (Arms, 1975; Banta & Marinoff, 1975; Corea, 1977; Mehl, 1977). Women also developed their own health care services (Gaskin, 1980; Marieskind, 1980). The work of the Boston Women's Health Book Collective (1971, 1976, 1984) illustrates how women could learn to share, teach others, and collectively write about health related experiences in ways that benefitted women. This cooperative movement illustrated that informed women were in a position to evaluate their own care and to be assertive in obtaining the type of care they wanted.

Naisbitt (1982) stated that the movement away from institutionalized care to self-care was a megatrend which was comprised of three minor trends. These minor trends, according to Naisbitt (p. 134), include the following:

1. New self-care habits that actualize the individual's newfound responsibility for health.
2. Self-care that illustrates one's self-reliance in areas not genuinely requiring professional help.

3. The success of the new paradigm of wellness and holistic care over the traditional medical model of illness, drugs, surgery, and treating symptoms rather than the whole person.

Advocates of self-care stress the need for an individual to accept responsibility for health by assuming a more active role in determining and meeting personal health care needs. Ultimately people are responsible for their own health (Joseph, 1980). Williamson and Danaher (1978) found that when people felt they were sick, 16% did nothing; 63% performed self-care; 12% performed self-care and sought professional care; 8% sought professional care, and 1% needed hospitalization. Therefore, perhaps 75% or more of health care for these individuals was self-care and included both activities that substituted for professional intervention and those that supplemented professional care. These investigators also found that approximately 25% of the illness episodes seen in general practice were believed by the practitioner to be ones in which self-care could have been substituted; and that 15-18% of the illnesses could achieve a better result if supplemented by self-care (Williamson & Danaher, 1978). While medical care can be made more accessible through institutional change, "the approach most likely to improve health lies in what

individual do to and for themselves" (Fuchs, 1974, p. 44). In summary, Antonovsky (1980) stated that "most of us stay alive on our own in spite of a lot of . . . stress, and microbial reasons not to" (p. 62).

Self-Care in Research

Of all the nursing models and theories, only Orem's general theory of nursing has helped to clarify the types of situations requiring self-care and specify the requisites for universal, developmental, and health deviation self-care (Woods, et al., 1988). Researchers working with Orem's conceptualization of self-care have begun efforts to measure self-care agency among children, adolescents, and adults (Gaut & Kieckhefer, 1988; Gulick, 1987; Moore, 1987a, 1987b); to modify self-care attitudes (Hartweg & Metcalfe, 1986); to assess self-care patterns (Gulick, 1987; Woods, 1985); and to promote children's self-care agency (Moore, 1987a, 1987b).

The application of Orem's self-care theory to nursing practice has been attempted with diabetic patients (Backscheider, 1974; Frey & Denyes, 1989); post CVA patients (Anna, Christensen, Hohon, Ord, & Wells, 1978); elderly hypertensive females (Harper, 1984); chronically ill adolescents (Gaut & Kieckhefer, 1988); and adults receiving

chemotherapy (Dodd, 1982). However, this investigator was unable to find any published studies in which Orem's framework had been used with pregnant adolescents. Due to the paucity of research with adolescents using Orem's framework, a variety of studies are presented in which different populations, diseases, and methodologies have been utilized.

The first group of studies covered in this section described the self-care and self-care requisites in relation to health deviation. The second group of studies in this section addressed self-care in relation to the universal self-care requisites.

Allison (1973), an original member of the Nursing Development Conference Group, and Backscheider (1974) were two of the first nurses to publish a description of nursing systems based on Orem's theory of self-care. These researchers identified the therapeutic self-care demands of hypothetical diabetic patients and developed nursing systems which would help them meet these demands.

In 1978, Anna et al. used Orem's self-care theory and nursing process to develop care plans for nine post CVA geriatric patients who required intermediate and skilled nursing care. These patients resided in a 202-bed nursing home located in the Midwest. To aid in the data collection

process, an instrument based on a modification of the works of Backscheider (1974) and Petrlik (1976) was used. According to the authors, the concept of self-care, which required increased patient decision making, was received "unenthusiastically" by the patient population. "A great deal of instruction, encouragement and assistance was needed before many of the patients felt comfortable enough in the new role to contribute to their care" (Anna et al., 1978, p. 9). In addition to the patients, the nursing home staff initially resisted the introduction of Orem's concepts into their established pattern of performing care. At the end of the 5-week period, the staff reported observing an increase in self-care practices by the patients (Anna, et al., 1978).

In 1980, Nursing Clinics of North America published a series of articles on self-care theory. In one of these articles, Mullin (1980) discussed how the implementation of Orem's self-care concept in the acute care setting was constrained by the hospital system. However, Mullin gave specific examples of how this concept could be translated into practice. Mullin summarized that "inclusion of the self-care concept as a basic component of nursing practice redefines and redirects that practice so significantly that a new practice model emerged for the nursing of adult individuals" (p. 190).

Investigators have studied the role of self-care in the treatment of chemotherapy side effects in cancer patients (Dodd, 1982; Musci & Dodd, 1990). In a descriptive, correlational study, Dodd assessed self-care behavior in 48 cancer patients, 25 to 83 years of age, experiencing a variety of diagnoses and chemotherapeutic protocols. These patients were recruited through the Visiting Nurse Association and a group of private oncologists on the West Coast. One of the purposes of this research was to assess whether chemotherapy information influenced self-care behavior. The Chemotherapy Knowledge Questionnaire and the Self-Care Questionnaire were used to measure knowledge and the severity of the side effects. The patients identified an average of 3.13 side effects that were attributed to chemotherapy. However, the patients reported initiating an average of only 0.81 self-care behaviors. The findings of Dodd's study indicated that although the patients perceived the side effects of chemotherapy and a need for action, few initiated self-care. Dodd hypothesized the lack of self-care may have reflected a lack of knowledge. However, with informational nursing intervention, the hypothesis that management techniques related to side effects would increase self-care behaviors was supported at the .01 level of significance. Dodd found that there was support for Orem's

belief that self-care behaviors could be reinforced and augmented by health professionals and that self-care behaviors could be learned.

In a longitudinal study, Musci and Dodd (1990) studied the relationship between cancer patients (n = 42) receiving chemotherapy and family members' (n = 40) affective states, family functioning, and self-care behaviors. The findings corroborated previous reports that patients performed a number of self-care behaviors which they found modestly effective. The patients cited themselves as the most frequent source of self-care behavior ideas and the primary self-care agent, with family members being peripheral care providers.

Several investigators (Alexander, Younger, Cogen, & Crawford, 1988; Harper, 1984; Larsson, Daleflod, Hakansson, & Melin, 1986) studied the effects of different kinds of nursing intervention on self-care. In 1984, Harper conducted an experimental study in which Orem's concepts were applied to a convenience sample of elderly, black, hypertensive female patients (n = 60) with self-medication problems. It was hypothesized that women who participated in a self-care medication program would have more knowledge about hypertensive medications; increased internal locus of control; more self-care medication behavior; fewer

medication errors; and lower blood pressure than women who participated in a teaching program about hypertension. The results showed that at 4 days post-treatment statistically significant ($p>.05$) changes occurred in the hypothesized direction for all dependent variables except blood pressure.

Larsson et al. (1986) compared the relative efficacy of a therapist-assisted relaxation treatment program with a self-care approach in the treatment and management of chronic headaches. The convenience sample of 46 adolescent high school students, 16-18 years of age, was randomly assigned to three treatment conditions (self-help, therapist assisted, and no treatment). Results of the study revealed a significant difference between groups ($F = 3.69$, $p<.01$) with a significant difference between the two relaxation treatments and the control group ($p>.05$). These results indicated that the self-care approach was as effective as the therapist assisted relaxation condition in reducing headaches. The results indicated that the self-care relaxation procedure was a potential low-cost alternative treatment ($t(27) = -3.45$, $p<.01$) (Larsson et al., 1986).

Alexander et al. (1988) found Orem's self-care nursing model significantly reduced emergency room utilization in asthmatic children, 15 months to 13 years ($n = 21$). The subjects in this study were conveniently chosen but randomly

assigned to either a control group or a clinical nurse specialist (CNS) group. The CNS counseled each family regarding preventive health measures, focusing on early recognition of asthma exacerbations and self-care. The CNS group demonstrated a significant reduction in the frequency of emergency room visits (2.5-1.1 versus 0.6-0.9 visits per patient, $p = .001$). The control group did not demonstrate a significant change in emergency room utilization (2.5-1.5 versus 2.4-2.1 visits per patient) (Alexander et al., 1988).

In a descriptive correlational study, Frey and Denyes (1989) tested several hypotheses derived from Orem's theory by examining self-care associated with both health and illness in 37 diabetic patients, 12 males and 25 females, who ranged in age from 11 to 19 years. Members of the sample were white and from middle to upper-income, two-parent families. Universal self-care, health, socioeconomic status, and health symptoms were operationalized by Denyes' Self-Care Practice Instrument (DSCPI); a combination of scores from the Self-Perception Profile for Children (SPPC) and the Denyes Health Status Instrument (DHSI); family score on the Hollingshead Four Factor Index and the Brief Symptom Inventory. The finding that age and health state (i.e., symptoms) significantly correlated with and accounted for 35% of the variance in universal self-care behavior, while

none of the basic conditioning factors significantly correlated with health deviation self-care at least suggested "that two types of self-care (health and illness) may be distinct" (Frey & Denyes, 1989, p. 74). In addition, the finding that none of the basic conditioning factors significantly correlated with health deviation suggested that different conditioning factors influence health deviation and universal self-care (Frey & Denyes, 1989). This study was one of the few specifically designed to test several relational hypotheses within Orem's general theory of nursing. The results of this study give focus and direction for future research.

The second group of studies pertain to self-care as it relates to universal self-care demands. Although not nearly as numerous as health deviation studies, these studies have nevertheless contributed to the understanding of self-care.

A group of investigators analyzed the relationship between universal self-care demands and self-care among women. Woods (1985) studied the universal and illness-related self-care activities employed by 96 women, 20-40 years of age. A health diary was kept by the participants, who recorded symptoms and self-care activities for a 3-week period. Contraceptive use and prescription medications accounted for 22% and 16% of self-care activities, while

diet and exercise accounted for less than 5%. Use of over the counter medications, checkups, and self-breast exams accounted for only 1.2%. The findings of this study "suggest that women employ a rich variety of self-care measures and cope with their symptoms in ways that reflect a deliberate rather than a random approach to the problem" (Woods, 1985, p. 232).

Using the same sample, Maunz and Woods (1988) described the influence sex-role orientation and employment had on self-care responses. "Feminist" (p. 40) women used over the counter medication more than "traditional" (p. 40) women who took prescribed medicine or altered their activity in response to symptoms. These findings suggested that women with more traditional norms were more likely than their counterparts to engage in illness-related self-care activity that required contact with formal health care professionals, while feminists preferred activities that did not involve professional consultation. Employed women responded to symptoms in a way that allowed them to continue their usual routine.

Davidson (1988) explored how middle class and working class women (n = 37) interpreted and used health information in the practice of self-care related to weight management. Data collected from intensive interviews indicated that

these women used a variety of very personalized, physical, and cognitive indicators to appraise their weight (i.e., 51% appearance, 46% physical feelings). These norms and criteria represented creative self-care tactics devised without professional assistance in weight management.

The above studies included a variety of individuals and settings. Findings in all the studies indicated that within Orem's framework, self-care can be an effective means of meeting both universal and health deviation demands.

Other publications germane to the development of Orem's general theory of nursing included Melnyk's (1983) and Fawcett's (1989) examination of Orem's model. Using Stevens' (1984) analytical framework, Melnyk proposed using Orem's model as a metaparadigm for nursing research and theory development. However, Melnyk limited the generalizability of Orem's model by proposing that it be confined to adults with self-care deficits. In a critique of Orem's model, Fawcett (1989) stated that both the concepts of health and environment should be further clarified within the model. In addition, Fawcett stated that the "relationship of self-care agency to health is not fully explained" (p. 225). Another publication pertinent to the development of Orem's theory of self-care is Riehl-Sisca's (1985) book, The Science and Art of Self-Care. This book

includes an interpretation of Orem's theory, ethical implications, criteria for determining curricula for different educational levels, and case studies with care plans for a variety of patients (postpartum, newborn, diabetic and myocardial infarction).

Of all the concepts in Orem's general theory of nursing, self-care has been the most studied and analyzed. Investigators have found, for the most part, that a variety of nursing interventions appear to be effective in changing self-care in individuals experiencing universal or health deviation demands.

Self-Care Agency

Self-care agency is a concept which is specific to Orem's general theory of nursing, and it has been defined by Orem (1985) as "the complex capability for action that is activated in the performance of the actions or operations of self-care" (p. 33). Although the concept of self-care agency first appeared in the second edition of Orem's Nursing: Concepts of Practice (1980), it was presaged in the first edition of this text by the notion of "power of agency" and by a description of abilities needed to "initiate and persevere in self care" (Orem, 1971. p. 35). The Nursing Development Conference Group (1979) first

analyzed self-care agency and identified three abilities which constitute this concept. Although this view was incorporated to some extent into the third edition of Orem's Nursing: Concepts of Practice, it was more comprehensively developed in more current publications (Orem, 1987; Orem & Taylor, 1986). "According to these publications, self-care agency is defined as a complex structure consisting of three types of abilities, which can be hierarchically arranged according to the degree to which they are foundational to one another" (Gast et al., 1989). These three abilities include the following:

1. Capabilities for self-care operations which consist of basic abilities such as sensation, perception, memory, and orientation; a set of knowing and doing capabilities; a set of dispositions affecting goals sought and a set of significant orientative capabilities and values.
2. Power components which are a repertoire of 10 self-care skills.
3. Self-care operations which include estimative, transitional, and productive operations.

Self-Care Agency Research

Studies in which self-care agency and its relationship to other concepts within Orem's model are explored have not been as numerous or as comprehensive as those exploring self-care. Nursing Clinics of North America published a collection of articles in which self-care agency in children (Facteau, 1980), alcoholic adolescents (Michael & Sewall, 1980), and women following cesarean delivery (Harris, 1980) were discussed. These investigators used the nursing process to develop a variety of interventions to increase self-care agency among selected groups.

Facteau (1980) developed four nursing care plans in which an infant, toddler, preschooler, and school age patient were used to demonstrate the nurse's role in helping children develop self-care agency. Michael and Sewall (1980) found that peer group reality therapy was an effective modality for increasing self-care agency among a group of 11 adolescents receiving treatment for alcoholism. Harris (1980) developed care plans and interventions to increase the self-care agency of families who had experienced cesarean deliveries.

Riesch (1988) used a one-group pretest-posttest design to study the changes in the exercise of self-care agency among pregnant women (n = 78) taking childbirth classes.

Self-care agency scores were found to be statistically higher following childbirth classes (F = 8.008, p = .0054). These classes included relaxation, breathing, and exercise techniques. However, no statistically significant findings were demonstrated when self-care agency scores were compared according to demographic variables.

Harris (1980) investigated the use of Orem's self-care framework to increase the self-care agency of families who experienced cesarean deliveries. A description of self-care activities that maternity patients could perform was given in the article, as well as an outline of classes that could be taught to promote self-care in childbirth couples. This author emphasized the utilization of the nursing process as a means to assist families to capitalize on their self-care strengths.

Moore (1987a) studied the relationship between autonomy, self-care agency, and locus of control in a sample of 92 children, 10-11 years of age, attending two parochial schools in the East. Using a pretest-posttest design, children were randomly assigned to one of four treatment groups (assertion training, first aid instruction, a combination of both therapies, and a control). The Personal Autonomy Scale (Chabot, 1975), Denyes' (1980) Self-Care Agency Instrument, and the Children's Health Locus of

Control Scale (Parcel & Meyer, 1978) were used to measure the variables. There was a significant positive relationship between children's autonomy and self-control (r = 27, p<.004 on pretest; r = .50, p<.001 on posttest). In addition, as the children's autonomy increased their self-care agency also increased (r = .20, p<.027). Findings from Reisch's (1988) and Moore's (1987a) studies supported Levin's (1978) premise that self-care health education promotes autonomy and self-care agency in individuals. These findings also supported Orem's (1985) position that providing information supports self-care activities.

A descriptive, cross-sectional design was used by Gaut and Kieckhefer (1988) to assess the usefulness of Denyes' Self Care Agency Instrument to measure self-care agency in chronically ill adolescents. A convenience sample of 51 adolescents, ages 11-20 years, with a diagnosis of asthma, diabetes, or convulsive disorder for at least one year participated in the study. All subjects, 25 males and 26 females, were patients in a metropolitan, university-affiliated, children's hospital outpatient clinic in the western United States. Measures of internal consistency were satisfactory and comparable to those of Denyes' (1980) original findings except for the factor of attitude toward health. Cronbach's alphas for the six scales were the

following: ego strength and health decision-making capability--0.85, relative valuing of health--0.71, health knowledge and decision-making experience--0.85, physical energy levels--0.65, feelings--0.71, and attitude toward health--0.17. Gaut and Kieckhefer concluded that their findings provided support for the reliability of the questionnaire among chronically ill adolescents.

Self-Care Agency Instruments

According to Gast et al. (1989), the "operationalization of self-care agency in the research literature during the last decade has paralleled the prevailing theoretical analyses during that time" (p. 30). To date, five instruments have been developed which measure various components of self-care agency. The three most frequently used of these instruments, Kearney and Fleischer's (1979) Exercise of Self-Care Agency (ESCA), Hanson and Bickel's (1981) Perception of Self-Care Agency (PSCA), and Denyes' (1980) Self-Care Agency Instrument (DSCAI) are briefly discussed. The other two instruments, Evers, Isenberg, and Philpsen's (1986) Appraisal of Self-Care Agency, and Neves' (1980) Health-related Cognitive Structure Instrument, have not been comprehensively tested or widely used and are not discussed.

Exercise of self-care agency. In 1979, Kearney and Fleischer developed the Exercise of Self-Care Agency Instrument (ESCA) which had 43-items and a 5-point Likert scale. Construct validity of the ESCA instrument was studied by hypothesizing positive relationships between the instrument and internal locus of control, self confidence, achievement, and negative relationships between ESCA and abasement and lability. Criterion variables were measured using the Internal-External Locus of Control Scale (Rotter, 1966) and the Adjective Checklist (Gough & Heilbrun, 1965). Predicted relationships between the ESCA and achievement, self-confidence and intraception were supported, while the proposed relationship between ESCA and internal locus of control was not supported.

In 1986, Isenberg conducted a theoretical analysis of the ESCA using the three identified components of self-care agency as defined by Orem (1987) and Orem and Taylor (1986). "Isenberg found 20 of the 43 items could be classified as dispositions and traits foundational to self care, 6 as power components, 10 as abilities pertaining to estimative or productive self care operations and 7 as irrelevant to the content domain of self care agency" (Gast et al., 1989, p. 32). Isenberg concluded that this instrument could not be considered a valid measure of self-care agency since only

10 of the 43 items of the ESCA scale pertained to estimative or productive operations.

Riesch and Hauck (1988) factor analyzed the ESCA scale using data from a pooled sample of 506 adolescents, university faculty, staff, students, pregnant women, and their labor coaches. Four factors were identified which supported the previously identified dimensions of the ESCA scale. Whetstone and Hansson (1989) further examined the ESCA through principal component analysis. Again four factors were extracted. While different labels for these factors were used, there was some consistency in item loadings on three of the four factors.

There is some consistency between McBride's recent factor analysis and Riesch and Hauck's (1988) analysis as evidence by consistency in several of the item loadings for each factor. McBride (1991), using 513, nonhospitalized adults as participants, identified four factors (e.g. self-concept and initiative; initiative and responsibility; negative items related to motivation; and knowledge and information seeking) which explained 32% of the variance. McBride's findings yielded an alpha coefficient of 0.83 for the total instrument and alpha reliabilities of .83, .83, .74 and .71 for Riesch and Hauck's (1988) four factors which support their reliability. Additional support for stability

in item loadings was found between McBride's analysis and Whetstone and Hansson's (1990) analysis. McBride reported alpha coefficients of .83, .69, .67, and .63, which suggests a reduced reliability in three of the four factors.

Perception of self-care agency. The Perception of Self-Care Agency (PSCA) instrument is a 43-item, self-report, paper and pencil instrument which uses a 5-point Likert scale. This instrument was developed by Hanson (1981) as part of her master's thesis. Hanson based PSCA items on the Nursing Development Conference Group's (NDCG) 10 power components which are as follows: (1) maintaining attention and requisite vigilance; (2) controlled use of the available physical energy; (3) control of the position of the body; (4) reasoning within a self-care frame of reference; (5) motivation or goal orientation toward self-care; (6) decision making about self-care; (7) acquiring, retaining, and operationalizing technical knowledge about self-care; (8) repertoire of skills for self-care; (9) ordering discrete self-care actions; and (10) integrating self-care with other aspects of living. Using 101 subjects, Hanson's item analysis provided a basis for Bickel's (1982) further development of the instrument. Following a factor analysis and varimax rotation (n = 456),

Bickel reduced Hanson's original 53-item questionnaire to 43 items. Five positive and one negative factor were identified which included 8 of the 10 power components identified in the NDCG analysis.

Using an independent sample of 465 nonhospitalized adults, Weaver (1987) reported on a confirmatory LISREL factor analysis of the PSCA. "This analysis failed to confirm either the five factors identified in the analysis done by Hanson and Bickel or the a priori dimensions of the questionnaire, the ten power components" (Gast et al., 1989, p. 34). These findings supported Weaver's conclusion that the validity of the PSCA as a measure of Orem's power components was questionable. However in 1989, Cleveland challenged Weaver's conclusions, mentioning Nunnally's (1978) contention that confirmatory factor analysis is premature for a relatively new instrument.

McBride (1991), using 513 adult, nonhospitalized subjects, performed exploratory factor analysis and varimax rotations in a comparative analysis of Denyes' (DSCAI), Kearney and Fleischer's (ESCA), and Hanson and Bickel's (PSCA) instruments. The analysis of the PSCA yielded five factors explaining 39% of the variance. Although the correlation matrix was ill-conditioned which Joreskog and Sorbom (1986) suggested indicates redundancy of items, there

was evidence of some stability in item loadings on two of the factors with Bickel's (1982) principal component analysis (McBride, 1991).

Self-care agency instrument. Denyes' (1980) Self-Care Agency Instrument is a 45-item, self-report, paper and pencil instrument which uses a 0-100% response scale. The development and testing of this instrument is further described in Chapter 3. Through exploratory common factor analysis and varimax rotation, McBride (1991) extracted six factors that explained 46.8% of the variance. There was some stability in factor loadings between Denyes' and McBride's analysis as indicated by consistent item loadings in relation to feelings and valuing of health. McBride found that the remaining four factors did not load in an identical manner. These findings indicate that Factors 4 and 6 (physical energy levels and attention to health) did not meet the .70 reliability suggested by Nunnally (1978).

The results of the factor analysis of all three of the instruments previously discussed indicate that self-care agency is a complex and multidimensional concept which no single instrument can adequately measure (Gast et al,. 1989; McBride, 1991). Further development of these three

instruments could be beneficial in the testing and further development of Orem's general theory of nursing.

The use of one or several of these instruments could assist the nurse in identifying an individual's self-care agency strengths and weaknesses. This assessment could aid the health professional in designing pertinent interventions that are focused on an individual's specific needs. If adolescents could be helped to recognize and improve their own self-care abilities and to use health services only when they identify potential or actual self-care deficits, there could be more efficient and appropriate use of health care services as well as more independent self care.

Health

The word health as it is commonly used did not appear in writing until approximately 1000 A.D. It is derived from the Old English word hoelth, meaning being safe or sound and whole of body (Sorochan, 1970). Historically, physical wholeness and appearance were of major importance for acceptance in social groups. Being healthy was construed as natural or in harmony with nature, while being unhealthy was thought of as unnatural or contrary to nature. The presence of disease marked the person as "unclean." No attempt was made to affect cure or to maintain or enhance the integrity

of bio-psycho-socio-spiritual functions not affected by disease (Dolfman, 1973).

In 1974, the World Health Organization (WHO) defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" (Tempkin, 1953, p. 45). Dubos (1965) defined health as a state, condition, or ability to function that enabled the individual to adapt to the environment. According to Dubos (1965), the "evaluation of health and disease varies from person to person because it is conditioned by highly individual requirements and subjective reactions" (p. 349). The degree of health experienced would change depending on one's ability to adapt to external and internal stressors. Aubrey (1953) developed a dualistic approach to health in which mental and physical health were separate. Aubrey believed that the healthy person should experience cognitive efficiency, subjective feelings of contentment, and adequate performance of the functions that societal living and human existence require. Finally, Parson (1972) defined health as "the effective performance of valued roles and tasks for which an individual has been socialized" (p. 132).

As early as 1959, Dunn viewed health as more than the absence of disease and suggested that an individual's health

status could range from death to peak wellness. Dunn coined the word "high level wellness" which was defined as "an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable" (p. 447). While the definition advanced by Dunn identified balance as a dimension of health, major emphasis was on the realization of human potential through purposeful activity. Dunn stated that high-level wellness, or optimum health, involved three components:

1. progress in a forward and upward direction toward a higher potential of functioning,
2. an open-ended and ever-expanding challenge to live at a fuller potential and,
3. progressive integration or maturation of the individual at increasingly higher levels throughout the life cycle. (p. 789)

Definitions of health have varied over the course of nursing history. However, among nurse theorists there is a consensus that the whole person existing independently of disease constitutes a state of health (Woods et al., 1988). Nightingale (1860/1969) felt that the individual had reparative powers and that nursing placed the person in the best condition for the environment to influence these powers. Peplau (1952) defined health as an ongoing creative process, while Orlando (1961) viewed health in relation to human needs. Hall's (1966) work emphasized self-actualization, while Levine (1973) advocated the concept of balance. Roy

(1976) focused on human's adaptive capacities, and King (1981) defined health as a dynamic state of well-being in which the individual utilized resources in order to adjust to internal and external stressors and ultimately achieve maximum potential for daily living.

Orem separated health and well-being into two separate but related concepts in her self-care theory. Health was defined as "functional and structural integrity . . . progressive integrated development of a human being as an individual unity moving toward higher and higher levels of integration" (Orem, 1985, p. 52). Well-being was defined as a state characterized by experiences of contentment, pleasure, and happiness; by spiritual experiences; by movement toward fulfillment of one's self-ideal; and by continuing personalization. Pender and Pender (1987) defined engaging in responsible self-care and continuing development of self-care competency as facets of the process of personalization. Eiser, Patterson, and Eiser (1983) found that adolescents view health as living up to one's potential and experiencing positive emotional states.

A dissertation and literature search of health during pregnancy in adolescents was conducted which covered 25 years, from 1966 to the middle of 1991. No literature which discussed these two concepts in combination was found.

Therefore, this review of the literature was focused on self-care in women and adolescents in order to meet universal self-care demands.

Self-Care and Health Research

Based on an extensive literature search of the meaning of health, Smith (1981) found that "all of the various conceptions and ideas of health could be divided into four distinction models" (p. 44). These models included eudaemonistic, adaptive, role-performance, and clinical. In the eudaemonistic model, health was described as exuberant well-being; self-actualization of one's intrinsic potential. In the adaptive model health was defined as a condition of the organism which allows or permits engagement in effective interaction with the environment (Smith, 1981). The role performance perspective emphasizes one's socially defined roles and the ability to perform these roles, while the clinical model emphasized health as the absence of disease (Smith, 1981). Using Smith's framework, Orem's (1985) definition of health would be role performance (Woods, 1989).

Using this framework, Woods et al. (1988) conducted a study of 656 women in the northwestern United States, in which the subjects were asked to keep a 90-day health diary

addressing the question of what being healthy means to them. Using qualitative coding and clustering techniques, the frequencies with which women reported categories of health images were calculated. The most frequently cited health images included the clinical aspects (56.5%), positive affect (49.2%), fitness (43.8%), practice of healthy life ways (23.9%), and harmony (23.6%). The least frequently reported health images were positive self-concept (0.9%), cognitive function (10.1%), social involvement (6.1%), and actualizing self (6.6%) (Woods et al., 1988).

Through cross tabulation of categories, the researchers found that women reported the most eudaemonistic descriptors and few clinical images (r = -0.21, p<.00) and fewer role performance images (r = 0.19, p<.00). "Women's images of health reflected a strong emphasis on exuberant well-being, not merely the absence of symptoms, role performance or management of their environments" (Woods et al., 1988, p. 42). The emphasis on eudaemonistic images was consistent with the definitions of contemporary nursing theories and was evident regardless of the women's ages, education, income, ethnicity, or employment status (Woods et al., 1988).

Denyes (1988) studied the relationships between self-care agency, self-care, and health by using an

aggregate sample of 369 adolescents. The subjects ranged in age from 12 to 20 years and were drawn by convenience from urban, suburban, and rural settings. Denyes' three instruments (DSCAI, DSCPI, and DHSI) were used to measure the three concepts of interest. Denyes found that the presence or absence of health problems positively correlated with self-care agency (r = .12, p = .018), indicating that adolescents without health problems scored higher levels in self-care agency than did those with health problem (Denyes, 1988). Health problems were a significant predictor of self-care (β = .119, $p<.05$), as was age (β = -.154, p = .01) and self-care agency (β = .384, $p<.001$). Self-care (β = .496, $p>.001$) and self-care agency (β = .203, $p<.001$) were each significant predictors of general health state, with self-care being the stronger predictor. The variance with self-care alone was 35%; with self-care agency, the variance increased to 39%. The combination self-care, self-care agency, and health problems accounted for 41% of the variance in the health outcome variable. However, when basic conditioning factors, self-care agency, and self-care were combined in a regression equation, 59% of the variance in general health state remained unexplained (Denyes, 1988). Denyes' analysis of these concepts provided information concerning the concept of health as an outcome variable of

self-care agency and self-care. These findings suggest that health as an outcome variable can be promoted when nursing care is designed to assist individuals in developing and using self-care agency and self-care.

Adolescence

The word adolescence comes from the Latin verb adolescere which means "to grow" or "to grow to maturity" (Manaster, 1977, p. 25). In the United States, the adolescent population has fluctuated over the past decade. During the 1980s the number of American youths between 10 and 19 years of age shrank overall, dropping from 35 million in 1985 to an estimated 33.8 million in 1990. This number is expected to rise again by the year 2000 to 38.5 million for an increase of 14% over the decade. The United States is also undergoing striking changes in the ethnic and racial makeup of its adolescent population.

By the year 2000, 31% of adolescents will belong to a racial or ethnic minority; 12% Hispanic, 16% African-American, and 3% of Asian or Pacific Island descent (Millstein, Irwin, & Brindis, 1991). Disproportionate numbers of minority ethnic adolescents live in inner cities or in nonmetropolitan areas, where schools often are inferior, job opportunities are limited, and street crime is

common. On the average, they come from families that experience relatively high unemployment and earn relatively low incomes, complete less formal education, experience earlier childbearing, and have higher birth rates than do nonminority adolescents. The number of minority youths living in poverty will probably continue to increase in the future, owing to higher rates among minority families of conditions known to be associated with low economic status (Feldman & Elliot, 1990).

Defining adolescence is often controversial. There are such wide individual and cultural variations that, more than any other age category, no sharp age delineation can be made. Hence, a wide spectrum of interpretations of this period exists. Adolescence has been defined as a period when (1) the individual progresses from the point of the initial appearance of secondary sex characteristics to that of sexual maturity and (2) the individual's psychological processes and patterns of identification develop from those of a child to those of an adult (Hendee, 1991).

The precise boundaries of adolescence are difficult to define and may vary depending upon whether the biological, psychosocial, moral, or cognitive development of this group is being addressed. While the development of biological maturity occurs early in adolescence (Tanner, 1970),

psychosocial maturation (Clausen, 1975) and cognitive development (Ginsburg & Opper, 1979; Kohlberg, 1972) occur later. Therefore it is possible for an individual to be physically mature and emotionally immature (Erikson, 1963; Rice, 1984).

In more primitive societies the transition to adulthood is recognized soon after or simultaneously with puberty. At this time, the adolescent assumes the privileges, responsibilities, and status accorded adults in the society. However, in more complex societies, this transition is less clearly delineated and usually prolonged. In addition to this prolonged period of cultural maturation, adolescents' goals and adult roles are less defined in advanced societies than in primitive ones (Hendee, 1991).

There are approximately six inter-related developmental tasks which the adolescent must achieve in order to be able to function as an adult. The tasks of adolescence include (1) biological reproductive maturity (Tanner, 1970); (2) cognitive development to the stage of formal operational thinking (Inhelder & Piaget, 1958); (3) development of a vocational identity (Erikson, 1963); (4) moral development (Inhelder & Piaget, 1958; Kohlberg 1972); and (6) a sense of self-identity or ego development (Erikson, 1963; Loevinger, 1976).

Biologically, adolescence is customarily viewed as beginning with the gradual appearance of secondary sex characteristics at about 11 or 12 years of age and ending with cessation of somatic growth at 18 to 20 years. Hormones cause a growth spurt and sexual maturation with accompanying skeletal, cardiovascular, and skin changes in the adolescent. Due to these physical changes, all adolescents experience changes in their self-concept and body image (Vaughn & Litt, 1990).

The traditional psychosocial theory of Erikson (1963) identifies the developmental crisis of adolescence as establishing a sense of identity. This process includes not only personal but also group and sex-role identity. At this time, the peer group assumes a pivotal influence which may cause conflicts within the adolescent's family. Some investigators (Greenberger & Steinberg, 1986) have found that work related responsibilities help the adolescent achieve the developmental tasks of adolescence.

Piaget (1972), in his cognitive theory, viewed development as occurring through process assimilation and accommodation to the environment. The period of formal operations, which develops between 11 and 15, is marked by the acquisition of the ability to deal not only with actual or imagined reality, but with the potential or hypothetical

as well (Vaughn & Litt, 1990). Investigations have revealed a somewhat later age of attainment for formal operations than previously thought by many people, while some researchers speculate that some individuals never reach this level of cognitive development (Kuhn, Langer, Kohlberg, & Hahn, 1977).

Closely related to cognitive development is the formation of moral thought. Kohlberg (1972) proposed a developmental theory that evolves through six stages. At the conventional level which occurs in late adolescence, the rules and expectations of society have been internalized. At this stage the concept of fairness is rooted in societal consensus, with right defined in terms of shared needs and interpersonal relationships leading to conformity. The rate of attainment of these progressive stages of moral development is based on cognitive developmental attainment and experiential prerequisites (Kuhn, Amsel, & O'Loughlin, 1988). Concrete operations are a necessary but not sufficient condition for conventional levels of moral reasoning, and formal operations are a necessary but not sufficient condition for postconventional moral reasoning. There is concern that the basis of Kohlberg's scheme of moral development is more applicable to the experience of males than females for whom relationships and feelings are

more relevant to the ontogeny of moral decision making (Vaughn & Litt, 1990).

According to Freud, all human behavior is energized by psychodynamic forces. Freud's (1935) genital stage begins at puberty. The genital organs become the major source of sexual tensions. As Freud noted, the process of parental detachment which occurs during adolescence is triggered by biological changes of puberty and their sexual sequelae. This period is characterized by intrafamilial storm and stress. However, the weight of the evidence to date indicates that the portrait of family storm and stress portrayed by early analytic writers is unduly pessimistic. Several insights have been gained from the storm and stress perspective. There has been a burgeoning of empirical research based on nonclinical populations. The findings of these studies emphasize diversity thus challenging the view that adolescence is necessarily a time of emotional upheaval and unpredictable behavior (Bandura, 1964; Douvan & Adelson, 1966; Powers, Hauser, Schwartz, Noam, & Jacobson, 1983).

Adolescent Development and Health

In 1987, it was estimated that 7 million of the 28 million American adolescents between the ages of 10 and 17 were at high risk of poor health outcomes (Dryfoos, 1987).

These youth engaged in many activities that had a high probability of negative consequences such as early unprotected sex, abuse of illegal substances, crime, violence or delinquency. Many were held back a year or more in school, had low grades, and were absent from school a great deal, with many dropping out of school.

In the 1990 publication, America's Adolescents: How Healthy Are They? (Gans, Blyth, Elster, & Gaveras, 1990), two disturbing trends were discussed. First, many health problems were affecting adolescents at younger ages. For example, the decline in age at first intercourse produced increased rates of sexually transmitted disease among adolescents. Gonorrhea rates were higher among sexually active 15- to 19-year-olds than among 20- to 24-year-olds (Johnston, O'Malley, & Bachman, 1987). A second disturbing trend was the simultaneous involvement of youth in several health-threatening behaviors, such as drug use, delinquency, unprotected sex, and sex with many partners. The National Institute on Drug Abuse (1989) conducted a survey of health knowledge and habits among noninstitutionalized youths 12 to 17 years of age. This profile of selected lifestyle factors revealed that among 1987 high school seniors, 67% reported having smoked cigarettes; 29% had smoked cigarettes within the last month, and 11% had smoked at least 10

cigarettes daily; 50% reported having used marijuana; 21% were current users, and 3% were daily users (Johnston et al., 1988). This same group of researchers also found that 92% of 1987 high school seniors had consumed alcohol at least once; 6% had consumed alcohol within the past 30 days; and 5% reported daily alcohol use (Johnston et al., 1988). Researchers have demonstrated that substance usage progresses in stages with tobacco, alcohol, or marijuana as introductory drugs that may lead to the use of other drugs (Gans et al., 1990). An important finding of these surveys was that adolescents did not relate their use of alcohol and tobacco to potential negative health outcomes.

Compared to adults, adolescents have fewer chronic conditions, fewer short-term hospital stays, and fewer days when they stay home sick in bed. They are also more likely to be assessed in excellent or very good health (Adams & Hardy, 1989). However, there is evidence that many adolescents may not get the health care they need (Gans et al., 1990). In 1981, the Select Panel for the Promotion of Child Health reported in Better Health for Children: A National Strategy that 14% of children and adolescents under the age of 18 did not receive the medical care they needed. In 1988 about 30% of adolescents between the ages of 12 and

17 had not seen a physician during the past year (Adams & Hardy, 1989).

Common concerns among a socioeconomically mixed sample of 1,400 adolescents included acne, obesity, menstruation problems, headaches, sexuality, sexually transmitted disease, substance use, nervousness, dental problems school problems, and family issues (Sternlieb & Munan, 1972). Similar results were for suburban and middle-class youth (Marks, Malizio, Hoch, Brody, & Fisher, 1983) and for samples of white, black, and Hispanic youth (Parcel, Nader, & Meyer, 1972). Feldman and Elliott (1990) noted that interestingly enough, health professional and adolescents identified the same health issues of drug use, sex, birth control, sexually transmitted disease, pregnancy, and menstruation.

Adolescence, as a period of major developmental significance, has special relevance for health (Jessor, 1977). Adolescence is a developmental period during which social and cognitive skills for autonomous decision making and responsible self-care are developed. This period is the stage of life in which individuals experiment with behaviors which can be health-damaging or life-threatening. Developmental capabilities and limitation, enthusiasm for independence, and the fragile egos of adolescents all

contribute to ambiguity concerning self-care potential. The rapidity of change during adolescent years makes anticipatory guidance and peer support for healthy life styles especially critical during this period of development (Pender & Pender, 1987). Health-damaging patterns developed and reinforced throughout childhood are difficult to reverse in adults. Positive health behaviors developed during adolescent years are resistant to change and persist over time. Individuals play a critical role in the determination of their own health status, since self-care represents the dominant mode of health care in our society (Levin, Katz, & Holst, 1979).

Adolescent Pregnancy

Adolescent pregnancy is currently viewed as a social problem of growing proportion. Researchers are seeking to identify adolescents at risk for pregnancy, striving to increase contraceptive awareness, and to improve health care to teenage mothers and their offspring.

There are many complex, interwoven variables that appear to be correlated with the rise in sexual activity and pregnancy among adolescents. Some researchers have indicated that one possible cause for the early initiation of sexual activity is the decline in the age of the

menarche. In all advanced countries, the average age of menarche has been dropping about 4 months per decade for the past century. The average age of menarche is 12.8-13.2 years with a range in chronological age of 9.1-17.7 years, and a range in bone age of 14.5 years. Menarche occurs relatively late in puberty at the time of maximal deceleration of height velocity and during Tanner's stages 3-4 of breast and pubic hair development (Corbett & Meyer, 1987). There is evidence that this decline has stabilized to 12.5 years in the United States, about 2 years after breast buds appear (Brooks-Gunn & Reiter, 1990).

The incidence of sexual activity is inversely related to socioeconomic variables such as residential location, education, religion, and occupational level of the parents (Jessor & Jessor, 1975; Kantner & Zelnik, 1972; Zelnick, Kantner, & Ford, 1981). Lower socioeconomic status of an adolescent's family has been linked with early age of intercourse among females, particularly among blacks (Zelnick et al., 1981). A number of investigators have shown that the vast majority of inner-city adolescents from low-income families have engaged in premarital sex (Furstenberg, 1976; Ladner, 1971; Zelnik & Kantner, 1980).

Sexual intercourse is more prevalent among black than white adolescents at all ages; blacks become sexually active

earlier than whites (Bauman & Udry, 1981; Newcomer & Udry, 1983; Zelnick et al., 1981). In a sample of young people aged 11 to 17 (mean age 13.6), 77.3% of black males, 39.1% of black females, 24.9% of white males, and 10.3% of white females reported that they had engaged in sexual intercourse (Bell, Weinberg, & Hammersmith, 1981; Billy & Udry, 1985).

Early sexual experience is more likely to occur among teenagers of lower intellectual ability and academic achievement, who lack educational goals (Devaney & Hubley, 1981; Moore, Simms, & Betsey, 1986). In one of the few prospective studies available, a number of factors associated with early sexual activity were identified. Characterized as "transition prone," adolescents in this group placed a comparatively higher value at an earlier age on becoming independent and a lower value on academic achievement and religious beliefs (Jessor, Costa, Jessor, & Donovan, 1983; Jessor & Jessor, 1975).

The quality of the relationship between the parent and the adolescent has been found to be a relevant antecedent factor contributing to the early initiation of premarital sexual relationships. Investigators have found that adolescents who had mothers with nontraditional attitudes were more likely to engage in premarital relations than those teens coming from more traditional families.

Additionally, the rate of adolescent intercourse was higher for adolescents from single-parent families, for those who were unhappy at home, and for those who felt they had poor communication with their parents (DeLameter & MacCorquodale, 1979; Fox, 1979; Jessor & Jessor, 1975; Kantner & Zelnick, 1972; Sorensen, 1973; Zelnick et al., 1981).

Welches (1977, 1978, 1979) surveyed 75 female high school students and observed that the percentage of those who had sexual intercourse differed by the type of relationship with both parents. When the relationship with both parents was good, only 6% reported having had intercourse, as contrasted with 37% when the relationship with both parents was bad. When the relationship with the mother was positive and that with the father was negative, 44% reported having had intercourse. Negative relationships with the mother and positive relationships with the father resulted in a 67% occurrence of intercourse.

A strong relationship exists between a mother's own sexual experience as a teenager and that of her teenage daughter (Newcomer & Udry, 1981). Family composition and intactness have a further bearing on sexual experience. Girls from single-parent families are more likely to become sexually active at an earlier age that those who grow up in

two-parent families (Inazu & Fox, 1980; Newcomer & Udry, 1981; Zelnik et al., 1981).

Peer influence has been identified as a potent factor in determining when an individual initiates sexual intercourse. Hofferth (1987) and Peterson (1988) reported that in a 1986 poll, Louis Harris asked 1,000 teenagers why they had not waited to have sexual relations. The top four reasons given by adolescent girls were peer pressure (34%), pressure from boys (17%), curiosity (14%), and "everyone does its" (14%). Boys cited peer pressure (26%), curiosity (16%), "everyone does it" (10%), and sexual gratification (10%) (Peterson, 1988). The reasons given for not engaging in sexual relations included the danger of sexually transmitted diseases (65%), danger of pregnancy (62%), fear of discovery by parents (50%), and fear of having their reputations ruined with friends (29%) (Hofferth, 1987).

Since the 1960s, the emergence of new forms of religion and the increase in religiosity among a large number of young people may have increased sexual conservatism in these groups (Chilman, 1986). A study at a large southeastern university compared 1967 and 1980 responses of undergraduates and found that a higher number of students in 1980 reported nonmarital sex as immoral. However, in the 1980 study, the actual rate of sexual intercourse among the

students was higher than in the 1967 study (Robinson & Jedlicka, 1982).

The sexual behavior of adolescents is difficult to predict from their attitudes and normative beliefs. This age group is grappling with inconsistencies and conflicts between their parents' beliefs, their own beliefs, and their behavior. Being in a transitional state, adolescents have uncertain guidelines and a need to explore and experiment. In addition, they are increasingly subject to peer pressure which makes their behavior unpredictable and seemingly erratic (Harter, 1990).

The actual incidence of adolescent pregnancy is difficult to surmise for reasons which include increased utilization of abortion services and underuse of available health care services (Landry, Schubert, Cleland, Clark, & Montgomery, 1983). At present, American females aged 15 to 19 lead nearly all other developed countries in the incidence of teenage pregnancy. American teens are more likely to become pregnant than their peers in Sweden, Holland, France, Canada, and Britain. Investigators have shown that while blacks have a higher pregnancy rate than do whites, white American adolescents become pregnant at twice the rate of British and French teens and six times more often that their Dutch peers (Alan Guttmacher Institute, 1981).

In 1981, it was estimated that there were 10 million girls in the United States between the ages of 15 and 19 years (Alan Guttmacher Institute, 1981) The National Center for Health Statistics (1987) reported an estimated 1 million adolescent pregnancies per year. While about one-fourth of the adolescent pregnancies were intended and reflected conscious decisions by young women, mostly married and aged 18 or 19 to begin their families, the remaining three-quarters of these pregnancies were not intended. These pregnancies resulted in 543,000 births, 419,000 abortions, and an estimated 150,000 miscarriages and other fetal deaths. Of the 1 million adolescent pregnancies which occurred per year, 27% resulted in births to married couples; 22% resulted in out-of-wedlock births; 13% terminated in spontaneous abortion, and 38% terminated in induced abortion. Thus, fewer than half of all pregnancies to adolescents ended in a live birth and 38% were terminated by an induced abortion (Alan Guttmacher Institute, 1981).

In addition to the pregnancies experienced by women aged 15 to 19, about 30,000 girls younger than 15 also conceived during 1978 which resulted in 11,000 births, 15,000 abortions, and 4,000 miscarriages. Because there were larger numbers of adolescents in the general population, the absolute numbers of teen pregnancies from 1975 to

1980 increased by 13% (Alan Guttmacher Institute, 1981). Estimates provided by the Alan Guttmacher Institute revealed that, in 1981, 23.9% of all women would become pregnant before age 18 (20.5% of white and 40.7% of blacks) and 43.5% would become pregnant before age 20 (39.7% of whites and 63.1% of blacks) (Hays, 1987, p. 1). These rates declined slightly by 1984 when 19% of white females and 41% of black females became pregnant by age 18 (Moore, 1985).

Investigators have found that when non-Hispanic whites, U.S.-born Mexican Americans, Mexico-born Mexican Americans, and whites were compared, the white group showed the highest rate of early intercourse and the lowest rate of early births, due to their terminating pregnancies most often. The Mexico-born Mexican Americans had the lowest rate of early intercourse and the highest rate of early births. This group was most likely to get pregnant if sexually active and have the child if pregnant (Aneshensel, Becerra, Fielder, & Schuler, 1990).

While pregnancy rates of sexually experienced adolescents have declined since the 1970s, the proportion of pregnant teens who marry before childbirth has sharply decreased. In the 1950s, less than a third of the first births to teen mothers were conceived out of wedlock. In the 1980s, close to two-thirds of all white teen mothers

(delivering first births) were unmarried when they became pregnant, and almost all blacks (97%) were single (Furstenberg, Brooks-Gunn, & Chase-Landsdale, 1989).

By 1981, the 500,000 or more live births which occurred yearly as a result of adolescent pregnancy imposed large medical, developmental, social and economic burdens on the parents, infants and society (Alan Guttmacher Institute, 1981). Problems common to infants of adolescent mothers include prematurity and low birth weight (Blum & Goldhagen, 1981; Dott & Fort, 1976), decreased rate of growth during childhood (Sarrel & Klerman, 1969), low IQ and suboptimal school achievement (Browman, 1981; Feldman & Elliott, 1990; Thompson, Coppleman, & Zeitschel, 1979). For the adolescent bearing the first child, morbidity during pregnancy has included pregnancy induced hypertension, cephalopelvic disproportion, increased neonatal death rates, abruptio placentae, and abnormal labor and, in subsequent years, less education, large family size, and welfare dependence (Lee & Corpuz, 1988).

Since 1922, investigators have observed that pregnancy during adolescence has been associated with obstetric complications which have affected neonatal mortality and morbidity (Harris, 1922). However, researchers have noted that complications have not been statistically significant

across studies. Since the 1970s, age, ethnicity, socioeconomic status, and health habits have been found to influence reproductive risks (Kaltreider & Kohl, 1980). Through multivariate analysis, maternal race, weight prior to pregnancy, weight gain during pregnancy, marijuana use, infant gestational age, and infant gender have been found to account for 40% of the variance of birth weight. Other investigators who suggested a greater risk attributable to age alone did not separate this factor from other factors known to affect pregnancy outcomes, such as parity, race, socioeconomic status, educational level, and marital status (Merrit, Lawrence, & Naeye, 1980; Moyer, 1975; Weiner & Milton, 1970).

Pregnancy induced hypertension and prolonged labor are more common among adolescents than among women who delay pregnancy and childbirth until their 20s (Dott & Fort, 1976). However, a number of authors have questioned the extent to which the health problems of the pregnant adolescent are directly a function of biological maturity and age or are more specifically related to delayed, inadequate, or total lack of prenatal care (Select Panel for the Promotion of Child Health, 1981). In several relatively well-controlled studies, researchers did seem to find adolescents at increased risk for preeclampsia, eclampsia,

and chronic hypertension on the basis of age; but all of these conditions are more common in primiparous women, and more pregnant adolescents are primiparous than not (McAnarney & Greydanus, 1989).

Adolescents, those at highest health risk from pregnancy and childbirth, have continued to receive the least adequate medical attention. Poor, black, rural, unmarried adolescents have been most likely to be among the one-quarter of pregnant women in the United States who received belated or no prenatal care (Select Panel for the Promotion of Child Health, 1981). Other barriers to seeking prenatal care have included illicit drug use, negative attitudes toward pregnancy, lack of social support, negative attitudes toward health professionals, and perceiving prenatal care as unimportant and unnecessary (Poland, Ager, & Olson, 1987). The National Center for Health Statistics (NCHS, 1981) reported that in 1978 two-thirds of the 11,000 mothers under age 15 received no care during the first trimester of pregnancy; one-fifth had no prenatal care at all or began care during the last trimester. Adolescents have been twice as likely as women in their early 20s to go through the first 6 months of pregnancy without prenatal care. Researchers have found that given early, comprehensive prenatal care, adolescent pregnancy outcome is not

significantly different from the outcome of other women (Finkelstein, Finkelstein, Christie, Roden, & Shelton, 1982; McAnarney & Theide, 1981).

A number of psychological studies have resulted in the identification of other characteristics of unmarried adolescent childbearers controlling for social and economic variables (Chilman, 1986). Adolescent mothers have tended to have lower self-esteem and to do less well in school. These mothers have been more likely to drop out of high school, even when compared with women of similar socio-economic backgrounds and academic aptitude who postponed childbearing (Card & Wise, 1981; Mott & Marsiglio, 1985). Whether educational attrition is caused by childbearing itself or by the fact that early childbearers are more susceptible to dropping out has not been answered (Rindfuss, St. John, & Bumpass, 1984). Because of their educational deficit, teenage mothers have been less likely to find stable and remunerative employment. Consequently, they have been more likely to rely on public assistance than women who began childbearing later in life (Duncan, 1984). Findings from most studies have indicated that early childbearers will not achieve complete economic parity with women who postpone childbearing.

Long-term and short-term psychosocial risks have been identified in infants of adolescent parents. The greatest risks to the infants of adolescents have been high incidences of low and very low birth weight and neonatal morality (Lee & Corpuz, 1988). Infants who are very low birth weight are 20 times more likely to die in their first year of life when compared with normal weight infants (Mitchell & Brindis, 1987).

Long-term consequences to children of teens have been less well documented. Children born to teens have been found to score lower on IQ tests than children born to women in other groups (Gabel, 1988). In a Baltimore study, half of all the children of teen mothers had repeated a grade in school. In a follow-up study, investigators found more emotional misbehavior, later drug use, and earlier initiation of sexual activity for the children of teens (Furstenberg, Brooks-Gunn, & Morgan, 1987).

Adolescent pregnancy is a multidimensional topic. It reduces human and financial resources and is setting a social precedent the long-range effects of which are still largely unknown. Investigations of adolescent pregnancy in relation to self-care and health are needed in order to identify the health care demands of this population. Only

then can specific nursing interventions be instituted to meet the needs of this population.

Summary

A review of the literature revealed that while self-care had been defined and used in both medical and nursing literature, there has not been any published research reported on self-care of the pregnant adolescent. Adolescence has been identified as a period during which social and cognitive skills for autonomous decision making and responsible self-care are developed. However, investigators have found that despite these cognitive skills, adolescents do not always take responsibility for their own health. Adolescents experiment with behaviors that can be health damaging or life threatening.

Investigators have observed that pregnancy during adolescence has been associated with obstetric complications which affect both neonatal and maternal mortality and morbidity. These complications include pregnancy induced hypertension, prolonged labors, and low birth weight infants. In addition, adolescents having infants are at greater risk for having larger family size, welfare dependence, and less education.

Several propositions in Orem's general theory of nursing address the relationships between self-care agency, self-care, and health. Denyes (1988) studied several of these relationships in an aggregate sample of 369 adolescents. Denyes found that health problems were a positive predictor of self-care ($\beta = .119$, $p \leq .05$), as was age ($\beta = -.154$, $p = .01$) and self-care agency ($\beta = .384$, $p \leq .001$). Self-care ($\beta = .496$, $p \geq .001$) and self-care agency ($\beta = .203$, $p \leq .001$) were each significant predictors of general health. The combination of self-care, self-care agency, and health problems accounted for 41% of the variance in health. Findings from this study provided important information concerning the concept of health as an outcome variable of self-care agency and self-care among adolescents.

Orem (1985) also identified numerous basic conditioning factors which may influence self-care. These factors include age, sex, developmental state, conditions of living, family system factors, sociocultural orientation, patterns of living, health state, and health care systems factors. Frey and Denyes (1989) found that both age and health state significantly correlated with and accounted for 35% of the variance in universal self-care behavior among 37 diabetic patients. These basic conditioning factors are the only

ones which have been found to be significantly correlated with self-care.

Several self-care agency instruments were identified and evaluated (Kearney and Fleischer's Exercise of Self-Care Agency, Hanson and Bickel's Perception of Self-Care Agency, and Denyes' Self-Care Agency Instrument). Denyes developed the Self-Care Instrument specifically to measure self-care agency among adolescents. In addition, Denyes developed two other instruments (Self-Care Practice and Health Status) to measure the concepts of self-care and health as defined by Orem. The development and construction of Denyes' instruments were based on the early work of Orem (1971) and the Nursing Development Conference Group (1973, 1979).

The results of this literature review established a basis for justifying and designing a study in which the relationship between basic conditioning factors, self-care agency, self-care, and health in pregnant adolescents could be studied. The analyses of these concepts may enable the health professional to identify self-care strengths and weaknesses within this group and provide appropriate intervention.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The purpose of this study was to examine and describe the relationships between Orem's basic conditioning factors, self-care agency, self-care and health in pregnant adolescents, ages 11-19 years. Descriptions of the setting, population and sample, protection of human subjects, and instruments as well as the procedure for data collection and analysis are included in this chapter.

A descriptive correlational design was used in conducting this research. The purpose of a descriptive correlational study is to describe the functional relationships among variables rather than to infer cause and effect (Woods & Catanzaro, 1988). Correlational research examines the relationship between variables, and unlike experimental or quasi-experimental studies, correlation studies do not have active manipulation of the independent variable. According to Brink and Wood (1989), the assumptions underlying correlational studies include the following:

1. The study variables have not been shown to covary in previous studies of similar populations.

2. A conceptual framework can be proposed to support the possibility of relationships among variables.
3. The variables exist in the population and are amenable to study.
4. The sample is representative of the population.
5. Each variable can be measure by a numerical scale.
6. There is no manipulation of variables; they are studied as they exist naturally (p. 62).

Relationships between several concepts in Orem's model have been described and correlated in previous studies. These relationships include age and developmental level; age and educational level; developmental level and education; perceived health status and age (which accounted for 35% of the variance in self-care); health symptoms and universal self-care which accounted for 64% of the variance in health (Denyes, 1988; Frey & Denyes, 1989). However, further research is needed in order to substantiate these results, as well as to investigate these concepts among pregnant adolescents.

Setting

The setting for this study was a large metropolitan area in the southwestern United States. This city covers an area of 578 square miles with a population of approximately 1.8 million. The county's 1988 teen birth rate of 66 births per 1,000 exceeded the national average of 51.1 births per 1,000; the state's pregnancy rate for 1988 was 68.9 births

per 1,000 (Bureau of Vital Statistics, Texas Department of Health, 1989).

Data collection took place in prenatal adolescent clinics in two county hospitals with health care provided by an affiliated medical school. Approximately 650 adolescents and a total of 5,000 women have delivered at one of the hospitals between July, 1990, and the end of February, 1991.

Pregnant adolescents attending the prenatal clinics in the two county hospitals were asked to complete the questionnaires and demographic data sheet while they were waiting to see a physician in the clinic. An office or conference room within the clinics was provided which ensured each adolescent's privacy.

Population and Sample

The population of this study included pregnant adolescents who attended prenatal clinics in the two selected county hospitals. A convenience nonprobability sampling method was used in this study. Convenience samples are obtained by accessing the individuals who are easy to identify and contact. The adolescent prenatal clinics provided an identifiable, easily accessible sample. The nonprobability sampling procedure tends to be "less expensive and requires less time than probability sampling

techniques" (Woods & Catanzaro, 1988, p. 109). This sampling method was selected because of the needs of the researcher were concurrent with the criteria of feasibility and cost (Woods & Catanzaro, 1988). The primary limitation of the nonprobability convenience sampling method is the biased representation of the sample and the subsequent decreased generalizability of the research findings to the population. However, this method was appropriate for this study because it allowed quick and convenient access to an identifiable population.

The sample in this study included 100 pregnant adolescents. Cohen (1988) suggested a sample size of 100 when using a significance level of .05 and a power of .90 in multivariate analysis. Munro, Visintainer, and Page (1986) suggested 20 subjects for each variable.

Subjects admitted to this study met the following criteria:

1. Pregnant adolescents, between 11 and 19 years of age.
2. No current history of the following pregnancy complications:
    a. Class D or higher diabetes: Onset before age 10; x-ray diagnosis of vascular disease in the legs; retinal changes (Moore, 1983).

b. Pregnancy induced hypertension: Blood pressure elevation of 30 mm Hg systolic and 15 mm Hg diastolic or levels above 140/90 on at least two occasions 6 hours apart. Urine protein 1+ or greater on two occasions 6 hours apart; protein in excess of 300 mg in a 24-hour urine specimen (Moore, 1983).

c. Type III heart disease: Normal activity brings discomfort, fatigue, angina, discomfort, dyspnea; comfortable only at rest (Moore, 1983).

d. Psychiatric disorders.

3. Able to read, write, and speak English.

To summarize, the sample was selected from pregnant adolescents who met the inclusion criteria and attended prenatal clinics in two county hospitals. A nonprobability convenience sampling method was used to obtain 100 subjects.

Protection of Human Subjects

This study met the guidelines of the Human Subjects Review Committee at Texas Woman's University. Permission for conducting the investigation was obtained from both Texas Woman's University and Baylor College of Medicine prior to beginning the study (Appendix A). Informed consent

was obtained from the adolescent prior to data collection. The following was included in the informed consent (See Appendix B):

1. A written explanation of the study and its purpose and the duration of participation.
2. A description of discomforts, risks, benefits of participation, and how the risk and discomforts would be handled.
3. A statement that confidentiality would be ensured, as no names would be associated with the data reported.
4. Instructions that the subject may refuse, withdraw consent to, discontinue participation, and request withdrawal of their data from the project at any time without affecting the care or treatment the adolescent received.
5. A statement that no information from the study would be released to the adolescent's parent/legal guardian, school or hospital record.
6. An assurance that subjects would be able to answer the questionnaires in a private location.
7. An explanation of whom to contact for answers to questions about the research and the subject's rights.

Instruments

This study was designed to describe the relationship between basic conditioning factors, self-care agency, self-care, and health in the pregnant adolescent, ages 11-19 years. The dependent variable was health and the independent variables were self-care agency and self-care; the extraneous variables were the basic conditioning factors. Three instruments were used to collect data in this study (Appendix C). The basic conditioning factors were measured by the Demographic Data Sheet. Self-care agency was measured by Denyes' Self-Care Agency Instrument (DSCAI). Self-care was measured by Denyes' Self-Care Practice Instrument (DSCPI) and health was measured by Denyes' Health Status Instrument (DHSI). Permission was obtained to use the instruments (Appendix D).

Demographic Data Sheet

The Demographic Data Sheet (Appendix C), developed by Denyes (1980) with additions made by the investigator, was used to collect data concerning basic conditioning factors. Items regarding age, ethnicity, income level of the family, educational attainment of the mother, school/job status, and living arrangements were included. These specific basic conditioning factors were selected because of their

significance in adolescent behavior in other research studies (Denyes, 1988; Giblin, Poland, & Sachs, 1987).

Basic conditioning factors are the variables which "potentially influence one's ability to carry out self-care" (Orem, 1985, p. 221). Orem's second proposition of self-care deficit theory states: "The individual's abilities to engage in self-care or dependent care are conditioned by age, developmental state, life experience, sociocultural orientation, health and available resources" (p. 35).

Denyes Self-Care Agency Instrument

Self-care agency was measured by the Denyes Self-Care Agency Instrument (DSCAI) (Appendix C). This instrument is a 35-item, self-report, paper and pencil instrument which has a 0-100% response scale. The subject was required to write the percent of "how much" knowledge the subject had about health related topics; "how often" the subject performed certain health practices and "how able" the subject was to describe feelings. Denyes developed the DSCAI to measure self-care agency in adolescents. The instrument developed was based on the early work of Orem (1971) and the Nursing Development Conference Group (NDCG) (1973, 1979). Orem noted that persons possess strengths and limitations in their self-care abilities.

Instrument construction was accomplished by using a theoretical description of self-care agency comprising approximately 100 statements about strengths and limitations in the adolescent's ability to make decisions about and to accomplish self-care. From the 100 statements tested, 35 items were selected for the DSCAI. A factor analysis followed by a varimax rotation was performed on the results obtained from 161 high school adolescents who completed the instrument. All but one of the items with loadings above .40 was retained and used in the final instrument. The six factors identified were: (1) ego strength and health decision-making capability; (2) relative valuing of health; (3) health knowledge and decision-making experience; (4) physical energy levels; (5) feelings; and (6) attention to health (Denyes, 1980).

In the initial instrument development study, split-half reliability estimates were calculated for the two factors which contained eight or more items. Pearson product-moment correlations were computed for the resulting pairs of items. The correlation coefficients for the first and third factors were as follows: ego strength and health decision-making capability; and health knowledge and decision-making experience $\underline{r}(152) = .80$, $\underline{p} = .0000$; and $\underline{r}(157) = .83$, $\underline{p} = .0000$. Evidence of internal consistency of the DSCAI

has been demonstrated though Cronbach's alpha coefficients of 0.87, n = 216 high school students (Denyes, 1980); 0.89, n = 27 high school students (McGrath, 1981); 0.90, n = 41 teen mothers (Musto, 1985); 0.90, n = 174 children (Franckowiak, 1987), and 0.90, n = 125 (McComish, 1988). Initial evidence of construct validity for the DSCAI was demonstrated by factor analysis and the identification of six factors (Denyes, 1980). The Cronbach's alpha coefficients for this study (n = 100) were as follows: self-care agency total, 0.88; ego strength and health decision making capability, 0.86; relative valuing of health, 0.72; health knowledge and decision-making experience, 0.90; physical energy, 0.42; feelings, 0.76; and attention to health, .50.

Denyes Self-Care Practice Instrument

Self-care was measured by the Denyes Self-Care Practice Instrument (DSCPI) (Appendix C). The DSCPI is a 17-item, self-report, paper and pencil instrument with a 0-100% response scale, which required the subject to write what percentage of the time the participant engaged in various health care activities.

The self-care practice items were developed from the works of Belloc and Breslow (1972) and Belloc (1973) who

studied personal health practices in a large sample of adults. The DSCPI included measures of both self-care actions (e.g., following through on one's own health decisions) and specific actions that meet the universal self-care requisites (e.g., eating a balanced diet, taking actions to keep one's self safe). Denyes (1980) tested the DSCPI at the same time and in the same manner as the DSCAI. Statistical analysis of response variability, item distributions and item stability was completed (Denyes, 1980). The 12 self-care practice items with good response variability, relatively normal distributions and stability across alternate forms (i.e., eta correlations of .50 or greater) were factor analyzed. A varimax rotation was used, which identified three factors. The percentage of variance accounted for by these factors is unavailable. The original DSCAI instrument has been lengthened from 12 to 17 questions.

Support for reliability and validity has been provided by subsequent studies with Cronbach's alpha coefficients of 0.85 using asthmatic adolescents (Mitchell, 1983). In a study using aggregate data, the alpha coefficients for the total scale were found to range from 0.84 to 0.92 by Denyes (1988) in 216 suburban and rural high school students, McGrath (1981) in 32 rural primary care clinic adolescent

patients, Denyes and Loveland-Cherry (1982) in 46 suburban adolescents attending a party, Musto (1985) in 42 alternative high school teen mothers program participants, and Surowiec (1986) in 33 urban/suburban clinic patients with chronic asthma. The Cronbach's alpha coefficient for this study was 0.91.

Denyes Health Status Instrument

Health as an outcome or goal of universal self-care was operationalized by the total score obtained on the Denyes Health Status Instrument (DHSI) (Appendix C). The DHSI is a 10-item, self-report, paper and pencil instrument with a 0-100% response scale designed to measure one's perceived general state of health as well as specific dimensions of health (activity, rest, nutritional health). The health status questions were developed primarily from Brunswick's (1976) work on indicators of health status in adolescence and from items used in the U.S. Health Interview Survey (1975).

The 10 health status items with good response variability, relatively normal distribution, and stability across alternate forms (eta correlations of .50 or greater) were factor analyzed (Denyes, 1980). A varimax rotation was used and three factors were identified. The percentage of

the variance accounted for by these three factors is unavailable. Cronbach's alphas ranging from 0.79 (Mitchell, 1983) to 0.83 to 0.88 for an aggregate sample described in the previous section have been reported by Denyes (1988). The Cronbach's alpha for this study was 0.86.

Data Collection

Pregnant adolescents, 11-19 years of age, attending adolescent prenatal clinics in two county hospitals and who met the criteria for admission were asked to participate in this study. Every adolescent was given a written explanation of the study and a description of how their rights would be protected during the study. Each adolescent was asked to sign a consent form. Upon receiving the signature for informed consent, verbal and written instructions for the questionnaires were given to the participant by the investigator. A majority of the instruments were completed in an office or conference room in the clinics. These settings provided some privacy for the adolescent. The order of administration of the questionnaires was the following: Demographic Data Sheet, Denyes' Self-Care Agency Instrument, Denyes' Self-Care Practice Instrument, and Denyes' Health Status Instrument. The investigator was

available to the participant to assist with any clarification or explanation of the instruments.

All of the instruments used in this study were pilot tested on a sample of 10 pregnant adolescents from a prenatal adolescent clinic in a county hospital with health care provided by an affiliated medical school. The primary purpose of the pilot study was to test the methodology and instruments which were to be used in the main study. Specifically, the objective of the pilot study was to answer questions regarding the semantic clarity of the questionnaires and the ability of the subjects to understand the response format. The subjects who participated in the pilot study did not appear to have any difficulty in understanding the questions or the response format. Two subjects each asked one question for clarification of questions on the instruments. Cronbach's alphas for the DSCAI, DSCPI and DHSI were 0.94, 0.91 and 0.90 ($\underline{n}$ = 10). Subscale reliabilities were as follows: SCA1 (ego strength and health decision-making capability), 0.86; SCA2 (relative valuing of health), 0.33; SCA3 (health knowledge and decision making experience), 0.95; SCA4 (physical energy levels), -0.40; SCA5 (feelings), 0.90; and SCA6 (attention to health), .62.

Pilot Study Results

In the pilot study, significant correlations were found between birth order and energy level (r = .5158, p = .010); ego strength and health decision making (r = .6250, p = .027); health knowledge and decision making experience (r = .7040, p = .012); and health knowledge and attention to health (r = .8052, p = .002). The self-care agency subscales which did not have significant correlations with self-care were relative valuing of health, physical energy level, and feelings. Health was significantly correlated with health knowledge and decision making experience (r = .7057, p = .011) and feelings (r = .7069, p = .011). No significant positive correlation was found between self-care and health. The multiple regressions revealed the following results: ego strength and health decision making accounted for 43% of the variance in health; health and self-care account for 76% of the variance in health knowledge and health decision making experience; self-care accounted for 49% of the variance in feelings; feelings accounted for 50% of the variance in health and attention to health accounted for 65% of the variance in self care.

The results of the pilot study indicated that very little of the variance in self-care agency in this sample of adolescents was accounted for by the basic conditioning

factors. Only three of the six factors of self-care agency had significant correlations with self-care. These factors were ego strength and health decision-making capability; health knowledge and decision-making experience; and attention to health. No significant correlation was found between self-care and health. Feelings accounted for 50% of the variance in health, while ego strength and health decision-making accounted for 43% of the variance in health. The analysis of self-care agency, self-care, and health appears to offer some insight into adolescent health behavior.

Treatment of Data

The purpose of this descriptive correlational study was to describe the relationships between Orem's basic conditioning factors, self-care agency, self-care, and health in pregnant adolescents, ages 11-19 years. The data were analyzed with a SPSSX statistical package using a Digital Equipment Company mainframe computer, the DEC-2060, located in the computer laboratory at Texas Woman's University in Houston, Texas.

The dependent variable health was operationalized as the interval level scores from Denyes' Health Care Status Instrument. The independent variables of self-care agency

and self-care were operationalized as the interval level scores from Denyes' Self-Care Agency and Self-Care Practice Instruments. The extraneous variables, Orem's basic conditioning factors, were operationalized as the information obtained from the Demographic Data Sheet. A significance level of $p \leq .05$ was used throughout the study.

The scores obtained from Denyes' three instruments (Self-Care Agency, Health Status, and Health Practice) and the Demographic Data Sheet were analyzed using a generic statistical strategy. The data were analyzed using a four-step generic statistical strategy to multivariate modeling (Woods & Catanzaro, 1988). This statistical approach enabled the researcher to assess patterns and trends in the data and to develop multivariate modeling.

First, descriptive statistics were used to describe the characteristics of the sample and the study variables. Measures of central tendency and dispersion were performed on the interval level demographic data and the scores obtained from the three questionnaires. Frequencies and percentages were done on nominal and ordinal level data. Reliabilities of Denyes' Self-Care Agency (DSCAI), Self-Care Practice (DSCPI), and Health Status (DHSI) Instruments were assessed by using Cronbach's alpha coefficient (Waltz, Strickland, & Lenz, 1984). The reliability of these

instruments has been assessed by Denyes and others (Denyes, 1980; Franckowiak, 1987; McComish, 1988; McGrath, 1981; Musto, 1985).

Second, group differences were analyzed using Student t tests and ANOVAs. The Student t test is a statistical method for testing the difference between two groups (Munro et al., 1986). Student t tests were used to assess the differences in interval level sample demographics. The ANOVA is a method for testing the differences between two or more groups. The ANOVA enables the researcher to examine the differences among groups through an analysis that considers the variation across all groups at once (Munro et al., 1986). ANOVA's were used when the independent variables were at the nominal level.

Third, bivariate relationships among and between the independent (Denyes' Self-Care Agency and Self-Care Practice Instruments), dependent (Denyes' Health Status Instrument), and extraneous variables (Demographic Data Sheet) were assessed for patterns and trends. The Pearson product-moment correlation statistic and Spearman rho were used to establish correlations and correlation matrices for the sample. The correlation coefficient was "developed as a standard method of expressing the extent to which two variables are observed to co-vary in nature" (Wiggins, 1973,

p. 6). The relationships of the extraneous variables, Orem's basic conditioning factors and self-care (DSCPI); self-care agency (DSCAI) and self-care (DSCPI); and self-care (DSCPI) and health (DHSI) were assessed.

The fourth step in the generic statistical analysis was the development of a predictive interactional model through the use of multiple regression. Prediction becomes possible when the relationship between two variables can be specified if one variable (criteria) is a function of the other (Wiggins, 1973). In multivariate prediction, a number of prediction variables are combined to forecast a given criterion. According to Wiggins (1973), "multivariate prediction may thus be understood as an attempt to improve on the comprehensiveness of prediction by judicious selection of variables that are highly correlated with the criterion but only slightly correlated among themselves" (p. 24). Multiple regression enabled the researcher to confirm patterns and trends found during the univariate correlational analyses as well as construct a predictive model. In previous studies, relationships between several concepts in Orem's model have been significantly correlated. These include age and developmental level; age and education level; developmental level and education; perceived health

status and age; and health symptoms and universal self-care (Denyes, 1988; Frey & Denyes, 1989).

Summary

The purpose of this descriptive, correlational study was to explore the relationships between Orem's basic condition factors, self-care agency, self-care, and health, in the pregnant adolescent. Orem's general theory of nursing was used as the conceptual framework. A non-probability convenience sampling method was used to obtain a sample of pregnant adolescents between the ages of 11 and 19 years who were free of severe medical complications (Type III or higher cardiacs, Class D or higher diabetics, pregnancy induced hypertension) and psychiatric disorders. In addition, subjects were required to read, comprehend, and speak English. The setting for the study was several adolescent prenatal clinics within a large metropolitan area. Instruments for this study included Denyes' Self-care Agency Instrument, Denyes' Self-Care Practice Instrument, Denyes' Health Status Instrument, and a Demographic Data Sheet. Statistical analysis included descriptive, correlational, Student *t* tests, ANOVAs, and multiple regression.

CHAPTER 4

ANALYSIS OF DATA

A descriptive correlational study was conducted to examine the relationship between self-care agency, self-care, and health in the pregnant adolescent. Data were obtained through the use of a Demographic Data Sheet, Denyes' Self-Care Agency, Self-Care Practice, and Health Status Instruments. The sample was obtained from prenatal adolescent clinics located in two county hospitals with health care provided by an affiliated medical school. Clinic Site #1 was located in the center of a large medical center located in the southwestern United States. Clinic Site #2 was located northeast of a large metropolitan area in the southwestern United States.

The results of the data analysis for this study are presented in this chapter. Demographic information (basic conditioning factors) was obtained from responses to items on the Demographic Data Sheet. Univariate statistics used to describe the sample were frequency distributions, measures of central tendency, and measures of variance for both clinic settings as well as the total group.

Denyes' Self-Care Agency and Self-Care Practice Instruments were used to measure the independent variables of self-care agency and self-care. Denyes' Health Status Instrument was used to measure the dependent variable of health. Inferential statistics were used to analyze the data in relation to each of the three research questions. The questionnaires were computer coded and analyzed using the Statistical Package for the Social Sciences (SPSSX) (Norusis, 1983). The purpose of this chapter is to present the results of the data analysis for this study.

Description of the Sample

Nonprobability convenience sampling based on the established inclusion criteria was used to select 100 pregnant adolescents between the ages of 14 and 19 years. Of the 114 candidates qualified to participate in the study, 5 did not complete the questionnaire, 3 found that they could not read English adequately enough to finish the questionnaire, and 6 refused to participate in the study.

Demographic data from the Demographic Data Sheet for each participant included the following information: (1) age, (2) birth date, (3) grade in school, (4) grade last completed, (5) school attendance, (6) job, (7) number of siblings, (8) birth order, (9) health problems, (10) ethnic

background, (11) income, (12) marital status, (13) number of people living with the subject, (14) presence of the father in the home, and (15) number of times the subject had moved in the last year. A summary of this demographic data follows. Data for the total sample are presented first, followed by data for each of the two clinic sites.

Age

Subjects were asked to specify their ages as well as their dates of birth. Ages were calculated by subtracting the subjects' date of birth from the date the participants completed the questionnaires. The age of each subject was calculated to the nearest quarter of a year.

The ages of the 100 pregnant adolescents in the total sample had a range of 5.75 years, with a minimum of 14.25 and a maximum of 20.00 years (Table 1). The mean age of the adolescents in the total group was 17.48 years (SD = 1.45). Ages of the 59 adolescents from Clinic Site #1 had a range of 5.75 years, with a minimum of 14.25 and a maximum of 20.00 years. The mean age of these adolescents was 17.46 years (SD = 1.50). The range of age for the 41 adolescents from Clinic Site #2 was 5.50, with minimum of 14.50 years and a maximum of 20 years. The mean age of these 41 adolescents was 17.41 years (SD = 1.41).

Table 1

Frequency and Percentage Distribution of Ages of 100 Pregnant Adolescents

	Clinic Site #1		Clinic Site #2		Total	
Age (Years)	n	%	n	%	n	%
14	4	6.8	2	4.9	6	6.0
15	4	6.8	3	7.3	7	7.0
16	12	20.3	10	24.4	22	22.0
17	12	20.3	10	24.4	22	22.0
18	15	25.4	11	26.8	26	26.0
19	10	17.0	4	9.8	14	14.0
20	2	3.4	1	2.4	3	3.0
Total	59	100.0	41	100.0	100	100.0

The age distribution of the subjects is graphically portrayed in Figure 1 by clinic site. The largest groups of subjects from both Clinic Site #1 and Clinic Site #2 were 18 years.

Education

Subjects were asked to specify the grades they were presently attending and if they attended school during the school year. Of the 97 adolescents who answered the question pertaining to educational level, the largest number of adolescents were in the 10th grade (n = 28; 28.6%) (Table 2). The mode and median were the 10th grade, and the range

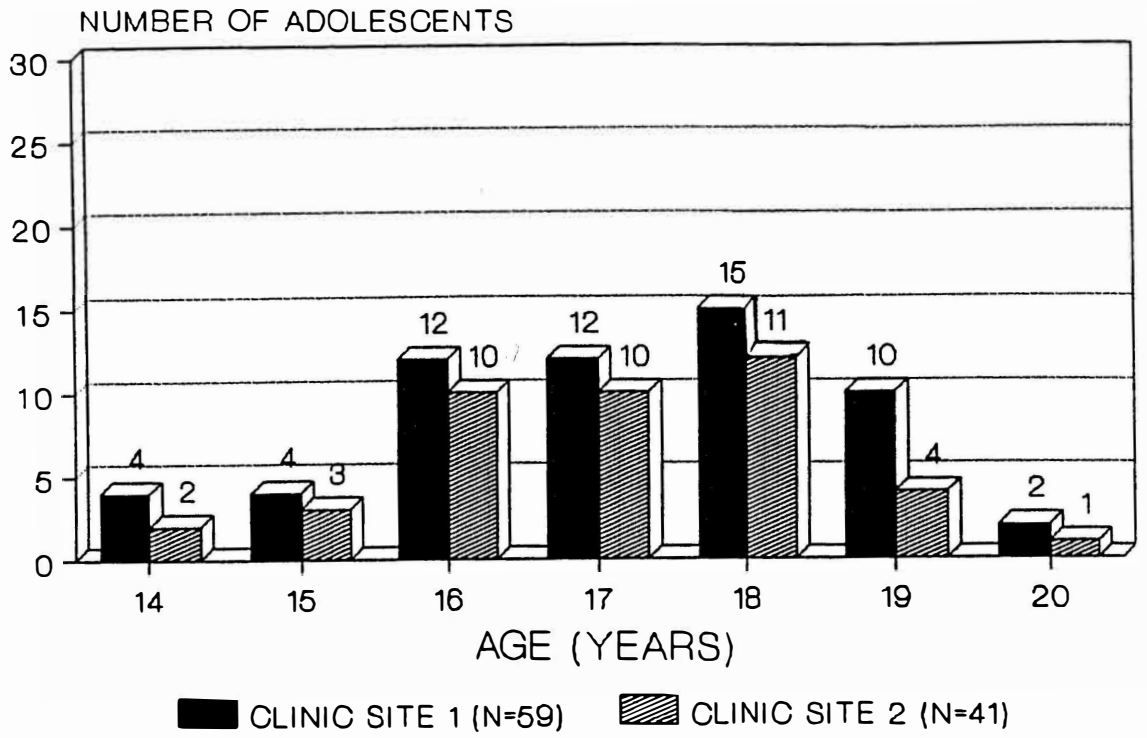

Figure 1. Age Distribution of 100 Pregnant Adolescents by Clinic Site

was 8.0 with a minimum of the 6th grade (n = 3; 3.1%) to a maximum of the first year of college (n = 3; 3.1%). Of the 99 participants who answered the question concerning school attendance, 60 (60.6%) attended school during the year and 39 (39.4%) indicated that they had dropped out of school.

Of the 56 adolescents who answered the question at Clinic Site #1, the largest number of participants attended the 10th grade (n = 16; 28.6%). The median was the 10th

Table 2

Frequency and Percentage Distribution of Grade Level of 97 Pregnant Adolescents

	Clinic Site #1		Clinic Site #2		Total	
Grade	n	%	n	%	n	%
6	3	5.4	0	0.0	3	3.1
7	5	8.9	1	2.4	6	6.2
8	4	7.1	2	4.9	6	6.2
9	11	19.6	6	14.7	17	17.5
10	16	28.6	12	29.3	28	28.8
11	7	12.5	8	19.5	15	15.5
12	8	14.3	11	26.8	19	19.6
College	2	3.6	1	2.4	3	3.0
Total	56	100.0	41	100.0	97	100.0

Note: Three subjects did not respond to this question.

grade. The range was 8.0 with a minimum of the 6th grade to a maximum of the first year of college. Only 30 (50.8%) of the 59 adolescents attended school during the year. This number indicated that 29 adolescents (49.2%) had dropped out of school. Of the 41 adolescents who answered this question at Clinic Site #2, the largest number of participants attended the 10th grade (n = 12; 29.3%). The median was 10.00. The range was 7.0 with a minimum of the 7th grade and a maximum of the first year of college. Ten adolescents (24.4%) at Clinic Site #2 dropped out of school, while 30 (73.2%) reported current school attendance.

The educational attainment of the pregnant adolescents in this study is reported graphically in Figure 2. The largest groups of subjects in both Clinic Site #1 and Clinic Site #2 were in the 10th grade in school.

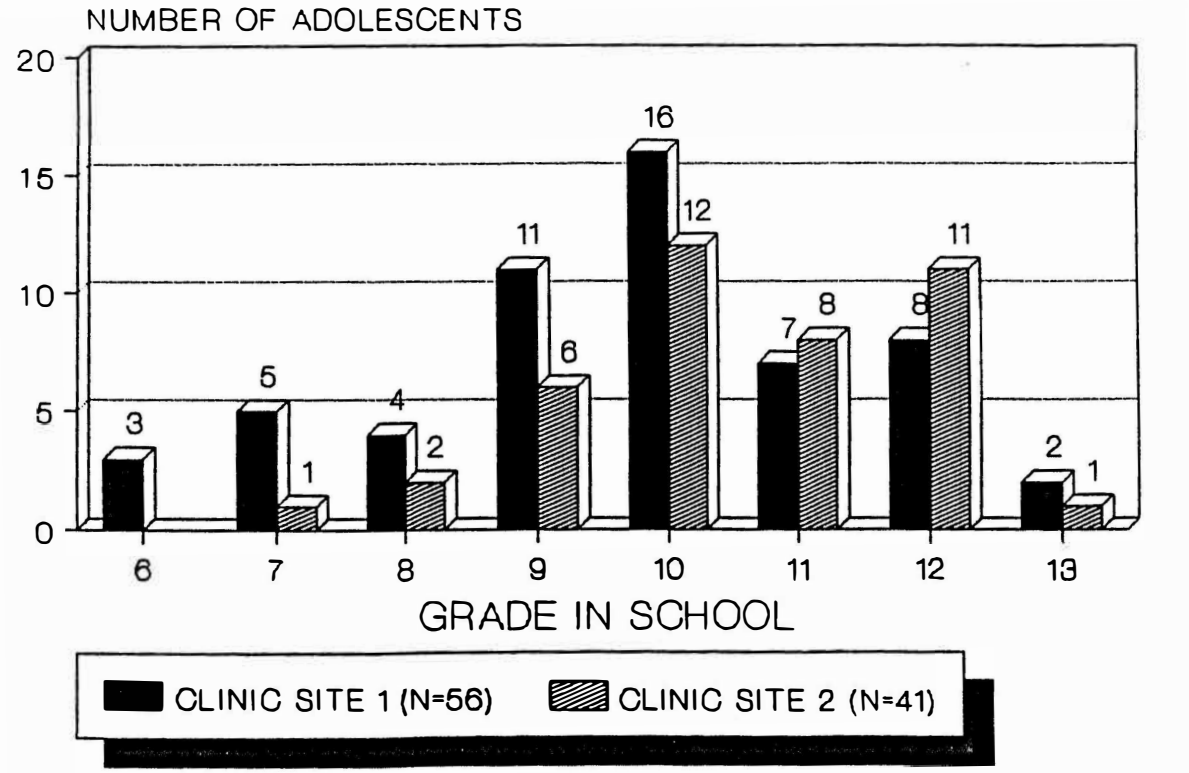

Figure 2. Educational Attainment of 97 Pregnant Adolescents by Clinic Site

Job

The adolescents were asked to indicate on the Demographic Data Sheet whether or not they presently had a job. Of the 100 adolescents who answered the question, 14 (14%) were employed, while 86 (86%) were unemployed. Of the 59 adolescents at Clinic Site #1, 8 indicated (13.6%) that they had a job, while 51 (86.4%) were not presently employed. Participants at Clinic Site #2 indicated that 6 (14.6%) had a job and 35 (85.4%) did not work. Therefore, the vast majority of the adolescents in the sample were not employed.

Siblings

The subjects were asked to indicate the number of siblings in their family (Table 3). Of the 99 adolescents who answered this question, the largest group, 28 (28.4%), indicated having 2 siblings. The mean number of siblings was 2.77 (*SD* = 1.94). The range was 13 with a minimum of 0 siblings and a maximum of 13 siblings. Eight (8.1%) adolescents had no siblings, 14 (14.1%) had one, 28 (28.4%) had two, and 22 (22.3%) had three. Clinic Site #1 adolescents had a mean of 2.92 (*SD* = 2.24) siblings with a range of 13. The minimum number of siblings was 0 (*n* = 5; 8.5%) while the maximum was 13 (*n* = 1; 1.7%). Adolescents

in Clinic Site #2 had a mean of 2.55 siblings (SD = 1.38) with a range of 5.0. The minimum number of siblings was none (n = 3; 7.5%) and a maximum of 5 (n = 4; 10.0%). These statistics indicate that the largest number of adolescents in the study had two siblings.

Table 3

Frequency and Percentage Distribution of Siblings of 99 Pregnant Adolescents

Number of Siblings	Clinic Site #1		Clinic Site #2		Total	
	n	%	n	%	n	%
0	5	8.5	3	7.5	8	8.1
1	8	13.6	6	15.0	14	14.1
2	18	30.5	10	25.0	28	28.4
3	10	16.9	12	30.0	22	22.3
4	8	13.5	5	12.5	13	13.1
5	4	6.8	4	10.0	8	8.0
6	4	6.8	0	0.0	4	4.0
9	1	1.7	0	0.0	1	1.0
13	1	1.7	0	0.0	1	1.0
Total	59	100.0	40	100.0	99	100.0

Note: One subject did not respond to this question.

Birth Order

Ninety-eight adolescents answered the question concerning birth order (Table 4). The median birth order for the group was second (2.00). The range was 6 with a minimum of 1 (46.9%) and a maximum of 7 (1.0%). Forty-six

(46.9%) of the adolescents were first born. The 58 adolescents from Clinic Site #1 had a median of 1.00 with a range of 6.00. The minimum was one or first born (n = 32; 55.2%) and the maximum was 7 (n = 1; 1.7%). The 41 adolescents from Clinic Site #2 had a birth order range of 3, with a minimum of 1 (n = 14; 35%) and a maximum of 4 (n = 8; 20%). The median birth order was 2.0. The largest group, (14, 35%) was first born. These statistics indicated that the largest group of adolescents (n = 46; 46.9%) in the study were first born.

Table 4

Frequency and Percentage Distribution of Birth Order of 98 Pregnant Adolescents

	Clinic Site #1		Clinic Site #2		Total	
Birth Order	n	%	n	%	n	%
1	32	55.2	14	35.0	46	46.9
2	10	17.2	11	27.5	21	21.4
3	7	12.1	7	17.5	14	14.3
4	5	8.6	8	20.0	13	13.3
5	3	5.2	0	0.0	3	3.1
7	1	1.7	0	0.0	1	1.0
Total	58	100.0	40	100.0	98	100.0

Note: Two subjects did not respond to this question.

Health Problems

The adolescents in this study were asked to indicate if they had any health problems. If the answer was in the affirmative, the participant was asked to describe the health problem. The question relating to health status was completed by 99 adolescents. In the total sample, 18 (18.2%) of the adolescents reported having health problems. While 81 (81.8%) reported having no health problems. Of the adolescents reporting health problems only 2 (2%) were 14 years old; 6 (6%) were between 15 and 17 years old and 10 (10%) were 18 to 20 years old. Nine (50%) of the black adolescents, 4 (22.2%) of the Hispanic, and 5 (27.8%) of the white women reported having health problems.

Of the 59 adolescents who answered the question at Clinic Site #1, 18 (30.5%) indicated that they had health problems, while 41 (69.5%) had no health problems. The health problems listed included the following: ovarian cysts and endometriosis; obesity (listed twice); high blood pressure; TB; hearing and dental problems; anemia (listed three times); mental weakness and weight gain problems; heart flutter (listed twice); asthma (listed four times); epistaxis; mitral valve prolapse, kidney transplant; and diabetes. None of the 41 adolescents from Clinic Site #2 indicated health problems.

Ethnicity

Four categories of ethnicity were used on the Demographic Data Sheet. These categories were white, black, Hispanic, and other. The composition of the total sample (n = 100) was 50 black (50%), 18 white (18%), and 32 Hispanic (32%) (Table 5). Clinic Site #1 (n = 59) had 24 (40.7%) adolescents who were black, 14 (23.7 %) white, and 21 (35.6 %) Hispanic. Of the 41 adolescents at Clinic Site #2, 26 (63.4%) were blacks, 4 (9.8%) white, and 11 (26.8%) were Hispanic.

Table 5

Frequency and Percentage Distribution of Ethnicity of 100 Pregnant Adolescents

	Clinic Site #1		Clinic Site #2		Total	
Ethnicity	n	%	n	%	n	%
Black	24	40.7	26	63.4	50	50.0
White	14	23.7	4	9.8	18	18.0
Hispanic	21	35.6	11	26.8	32	32.0
Total	59	100.0	41	100.0	100	100.0

The frequency of ethnicity is depicted graphically in Figure 3. The distribution of pregnant adolescents is shown

separately for Clinic Site 1 and Clinic Site 2. The largest ethnic groups from both clinics were black.

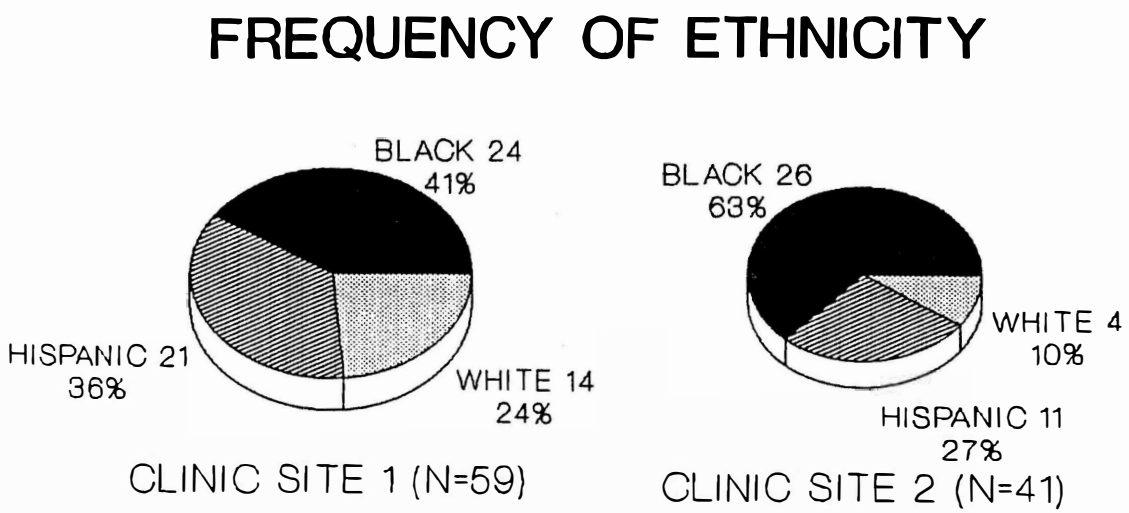

Figure 3. Frequency of Ethnicity of 100 Pregnant Adolescents by Clinic Site

Income

Subjects were asked how much money their families made in a month. Fourteen adolescents did not answer the question. Of the 86 adolescents who answered this question, 31 (36%) did not know the monthly income of their families (Table 6).

Of the 55 adolescents from Clinic Site #1 who responded to this question, 17 (30.9%) selected the $0-$499 category, while 15 (27.3%) selected the $500-$999 category. The

Table 6

Frequency and Percentage Distribution of Monthly Income of 86 Pregnant Adolescents

Monthly Income	Clinic Site #1		Clinic Site #2		Total	
	n	%	n	%	n	%
$0-$499	17	30.9	5	63.4	22	25.6
$500-$999	15	27.3	4	12.9	19	22.2
$1,000-$1,499	8	14.5	2	6.5	10	11.6
$1,500-$1,999	0	0.0	3	9.7	3	3.5
$2,000-$2,400	0	0.0	1	3.2	1	1.1
Don't Know	15	27.3	16	51.6	31	36.0
Total	55	100.0	31	100.0	86	100.0

Note: Fourteen subjects did not respond to this question.

median income fell in the $500-$999 category. Fifteen (27.3%) adolescents indicated that they did not know their families' incomes.

Adolescents from Clinic Site #2 indicated that 5 (16.1 %) families made between $0-$499 a month, while 4 (12.9%) families made $500-$999 a month. However, 16 (51.6%) adolescents did not know their families' income, and 10 (32.3%) did not answer the question. In general, the participants were of low income level, with 41 (46.7%) of the total sample reporting a monthly income level of $0-$999 a month.

Marital Status

The subjects who responded to this question (n = 99) were primarily single adolescents. The majority (78; 78.8%) were single, but 21 (21.2%) were married. No adolescents indicated that they were divorced or widowed. One black (4.8%), 7 whites (33.3%), and 13 (61.9%) Hispanics indicated that they were married. Adolescents at Clinic Site #1 indicated that 45 (76.3%) were single and 14 (23.7%) were married. A majority (33, 82.5%) of the 40 adolescents from Clinic Site #2 were single; only 7 (17.5%) were married. These findings support those of the U.S. Bureau of the Census (1988a) which indicated that most pregnant adolescents are unmarried.

Family Constellation

The number of people living with them were reported by 99 adolescents (Table 7). The median was 4.0 people, and the mean was 3.63 (SD = 1.87). The range was 8 with a minimum of 0 and a maximum of 8. The mean family size of the Hispanic adolescents was 3.70 people. The black adolescents' family had 3.96 people, while the white adolescents' family had 2.35 people.

In Clinic Site #1, the 59 adolescents had a median of 4.0 people and a mean of 3.66 (SD = 1.94). The range was 8

Table 7

Frequency and Percentage Distribution of People Living with 99 Pregnant Adolescents

People at Home	Clinic Site #1		Clinic Site #2		Total	
	n	%	n	%	n	%
0	2	3.4	1	2.5	3	3.0
1	7	11.9	4	10.0	11	11.1
2	8	13.6	9	22.5	17	17.2
3	10	16.9	3	7.5	13	13.1
4	13	22.0	11	27.5	24	24.3
5	10	16.9	6	15.0	16	16.2
6	5	8.5	5	12.5	10	10.1
7	1	1.7	0	0.0	1	1.0
8	3	5.1	1	2.5	4	4.0
Total	59	100.0	40	100.0	99	100.0

Note: One subject did not respond to this question.

with a minimum of 0 and a maximum of 8 people. At Clinic Site #2, the 40 adolescents had a median of 4.0 people living with them. The mean was 3.58 (SD = 1.80) people. The range was 8 with a minimum of 0 and a maximum of 8.

Support from Father

Adolescents were asked whether the baby's father lived with them. Of the 100 participants, the number who reported living with the father of the baby was 30 (30%), while 70 (70%) reported they did not live with the father. Adolescents from Clinic Site #1 reported that 21 (35.6%) lived

with the father of the baby in contrast to 9 (22%) adolescents at Clinic Site #2.

Moves

Adolescents were asked to indicate the number of moves their families had made in the past year. The total sample reported a range of 8 moves with a minimum of 0 and a maximum of 8 moves within the last year (Table 8). The mean was 1.34 moves and the median was 1. Clinic Site #1 participants (n = 59) indicated a range of 8 moves with a minimum of 0 and a maximum of 8. The mean was 1.68 moves. The largest group of adolescents (23, 39%) indicated only one move during the past year. Adolescents from Clinic Site #2 had a range of 3 moves with a minimum of 0 and a maximum of 3. Twenty (48.8%) adolescents indicated no moves during the past year. The mean for this clinic group was .829 moves, the median was 1.00. These statistics indicate that the adolescents from Clinic Site #2 were less mobile than the adolescents from Clinic Site #1.

Findings

Descriptive analysis was performed on variables related to self-care agency, self-care, and health in the pregnant adolescent. The Denyes' Self-Care Agency Instrument (DSCAI) was used in this study to measure self-care agency. This

Table 8

Frequency and Percentage Distribution of Moves Among 100 Pregnant Adolescents

Number of Moves	Clinic Site #1		Clinic Site #2		Total	
	n	%	n	%	n	%
0	12	20.3	20	48.0	32	32.0
1	23	39.0	11	26.8	34	34.1
2	13	22.0	6	14.6	19	19.0
3	3	5.1	4	9.8	7	7.0
4	4	6.8	0	0.0	4	4.0
5	1	1.7	0	0.0	1	1.0
6	2	3.4	0	0.0	2	2.0
8	1	1.7	0	0.0	1	1.0
Total	59	100.0	41	100.0	100	100.0

instrument was a 35-item, self report, paper and pencil measure which had a 0-100% response format. The Denyes' Self-Care Practice Instrument (DSCPI) was used to measure self-care. This instrument was a 17-item, self-report, paper and pencil measure with a 0-100% format. The Denyes' Health Status Instrument (DHSI) was a 10-item, self-report, paper and pencil measure with a 0-100% response format used to measure health.

Justification for Combining Sample

Before the research questions were addressed, several statistical tests were computed to analyze if a significant

difference existed in the basic conditioning factors (age, ethnicity, birth order, number of siblings, and marital status) between the adolescents at the two clinic sites. Each of the statistical tests used to analyze these differences and the results are discussed.

A *t* test for independent samples was used to analyze if a significant difference in age and number of siblings existed between the two clinic groups based on 100 subjects. The results of this analysis for age indicated no significant difference ($t = .19$; $p = .847$). The results for number of siblings indicated no significant difference between the two groups ($t = .92$; $p = .360$). A Mann-Whitney *U* was computed to compare the difference in birth order between the two clinic groups. The results were based on 98 adolescents and indicated no significant difference ($U = 958.5$; $p = .1208$). A chi-square was used to analyze the difference in marital status and ethnicity between the clinic groups. The results for marital status ($X^2 = .5534$, $p = .4569$) and ethnicity ($X^2 = 5.7054$, $p = .0576$) indicated no significant difference.

These tests indicated that no significant differences existed in the variables of interest between the two clinic groups. Therefore the groups were combined and analyzed as one group.

Research Questions

To test the research questions, the data were analyzed by parametric and nonparametric statistical procedures. Research questions are restated, statistical procedures are described, and findings are presented.

Research Question 1. What is the relationship between selected basic conditioning factors (e.g., age, number of siblings, birth order, marital status, and ethnicity) and self-care of the pregnant adolescent?

A Pearson product-moment correlation was used to test the relationship between age and self-care. The results were based on 98 subjects. The coefficient yielded $r = -.0469$ ($p = .647$) between age and self-care. The results of the correlation indicated that there was not a significant relationship between age and self-care in the pregnant adolescent in this study.

Another Pearson product-moment correlation was used to test the relationship between number of siblings and self-care. The results were based on 98 subjects. The coefficient yielded $r = -.0974$ ($p = .343$). Again the results of the correlation indicated that there was not a significant relationship between the number of siblings and self-care in the pregnant adolescent in this study.

A Spearman rho correlation was used to test the relationship between birth order and self-care. The results were based on 96 cases. The Spearman rho yielded $r = .0438$ ($p = .336$) which indicated no significant relationship between birth order and self-care in the pregnant adolescent.

A t test for independent samples was used to test the differences in self-care by marital status. The results were based on 97 subjects. The mean self-care score for married subjects was 61.03 ($n = 20$; $SD = 19.13$), and the mean self-care score for single subjects was 67.56 ($n = 77$; $SD = 17.06$). The results of the t test indicated no significant difference in self-care according to marital status ($t = -1.49$, $p = .141$).

An ANOVA was used to examine the differences in self-care in the three ethnic groups represented in the sample (black, white, and Hispanic). The results were based on 98 subjects. In this study, there were no significant differences in self-care according to ethnic group ($F = .562$, $p = .572$) (Table 9).

Multiple regression was proposed to answer the research question about the relative contribution of the conditioning factors to the explained variance of self-care. However, a series of t tests for independent samples was used to

Table 9

Analysis of Variance of Self-Care by Three Ethnic Groups (White, Black, and Hispanic)

Source	SS	df	MS	F	p
Between Groups	364.609	2	182.310	.562	.572
Within Groups	30,187.209	96	324.594		
Total	30,551.818	99			

analyze the differences in self-care by the selected basic conditioning factors (e.g., age, number of siblings, birth order, marital status, and ethnicity). None of the *t* tests indicated significant differences at the .05 level. Therefore multiple regression was not used. However, a trend did appear when self-care agency and the basic conditioning factors were analyzed using *t* tests. The trend indicated that younger (14 year old), single, black or Hispanic, first-born adolescents with more than one sibling scored higher on both self-care agency and self-care than other adolescents in the study.

Research Question 2. What is the relationship between self-care agency of the pregnant adolescent and self-care?

Pearson product-moment correlations for the entire study population (*n* = 100) were calculated between the

subscales as well as the total score obtained on Denyes' Self-Care Agency Instrument and the scores obtained on Denyes' Self-Care Practice Instrument to measure the relationships between self-care agency and self-care. The results of the correlations indicated significant relationships (Table 10) between the following subscales of self-care agency: ego strength and health decision-making capability (r = .7505; p<.0001); health knowledge and decision-making experience (r = .7086; p<.0001); feelings (r = .5036; p<.0001); and attention to health (r = .5788; p<.0001) and self-care. The total self-care agency score was significantly correlated with self-care (r = .7648; p<.0001) and health (r = .6838; p<.0001). The self-care agency subscale scores which were not significantly correlated to self-care in the pregnant adolescent were relative valuing of health (r = -.1501; p = .136) and physical energy levels (r = .0984; p = .330).

Tabachnick and Fidell (1983) described multiple regression analysis as a statistical technique used to assess the relationship between several independent variables and one dependent variable. A forward multiple regression was used to determine the contribution of the self-care agency subscales to the explained variance in self-care. A multiple regression allows the investigator to

Table 10

Pearson Product-Moment Correlations Between the Self-Care Agency Subscales, Self-Care Agency Total Score, and Self-Care Total Score

Self-Care Agency Subscales	Self-Care r	Self-Care p
Ego Strength and Health Decision Making Capability (SCA1)	.7505	.0001*
Relative Valuing of Health (SCA2)	-.1501	.1360
Health Knowledge and Decision-Making Experience (SCA3)	.7086	.0001*
Physical Energy Levels (SCA4)	.0984	.3300
Feelings (SCA5)	.5036	.0001*
Attention to Health (SCA6)	.5788	.0001*
Self-Care Agency (Total Score)	.7648	.0001*

*$p \leq .001$

to use knowledge of two or more independent variables to predict scores on a single dependent variable. To the extent to which two variables are correlated, they may be said to measure the same thing (Roscoe, 1975). A correlation matrix was used to identify the independent variables which were significantly correlated (Tables 11 and 12). The matrix revealed some multicollinearity between several of the self-care agency subscales and other

variables in the study. Theoretically, the independent variables should be correlated with the dependent variable, but not with one another. In this study, pairs of independent variables having correlation coefficients of >.60 were examined, and one variable for each highly correlated pair was excluded from the regression (Hedderson, 1987).

The two subscales of ego strength and health decision-making capability (SCA1) and health knowledge and decision-making experience (SCA3) were correlated above the .60 level (r = .7170; p<.0001). In addition, these two subscales were correlated with self-care and health. SCA1 was correlated with self-care (r = .7505; p<.0001) and health (r = .6624; p<.0001). SCA3 was correlated with self-care (r = .7086; p<.0001) and health (r = .6615; p<.0001). Because of the collinearity between these two subscales, SCA3 (health knowledge and decision making experience) and SCA1 (ego strength and health decision making capability), SCA3 was excluded from the regression analysis. The self-care agency subscales (e.g., ego strength and health decision making, feelings, and attention to health) were used in the multiple regression analysis. Ego strength and health decision-making capability, SCA1, accounted for 56% of the variance (R^2 = .5631; β = .63; $p \leq .0001$) in self-care.

Table 11

Pearson Correlation Matrix of Self-Care Agency Subscales and Self-Care Agency Total

	Self-Care Agency Subscales						
	SCA1	SCA2	SCA3	SCA4	SCA5	SCA6	SCA TOT
SCA1	1.000						
SCA2	-.1030 .308	1.000					
SCA3	.7170+ .001**	-.1939 .053*	1.000				
SCA4	.1258 .212	-.1936 .054*	.2112 .035*	1.000			
SCA5	.5150 .001**	-.1771 .078	.6366+ .001**	.1312 .193	1.000		
SCA6	.6031 .001**	-.0567 .575	.5643 .001**	-.0509 .615	.3850 .001**	1.000	
SCA TOT	.8485 .001**	-.1948 .052*	.9145 .001**	.3354 .001**	.7348+ .001**	.6881+ .001**	1.000

+r>.60

*p≤.05

**p≤.001

SCA1 (ego strength and health decision-making capability) and SCA6 (attention to health) together accounted for 59% of the variance (R^2 = .5882; β = .20; p = .0170) in self-care.

Table 12

Pearson Correlations Between Self-Care Agency Subscales, Self-Care Agency Total, Self-Care, and Health

	Self-Care Agency Subscales						
	SCA1	SCA2	SCA3	SCA4	SCA5	SCA6	SCA TOT
Self-Care	.7505+ .001*	-.1501 .136	.7086+ .001*	.0984 .330	.5036 .001*	.5788 .001*	.7648+ .001*
Health	.6624+ .001*	-.1239 .220	.6615+ .001*	.1005 .320	.4355 .001*	.4865 .001*	.6838+ .001*

+r>.60

*$p \leq .001$

Research Question 3. What is the relationship between self-care of the pregnant adolescent and health?

A Pearson product-moment correlation was computed between self-care and health. Self-care and health were significantly correlated (r = .7650; $p \leq .0001$). Self-care agency (total score) and self-care were used in a forward regression. Together self-care (β = .7649; $p \leq .0001$) and self-care agency (β = .5829; $p \leq .0001$) accounted for 61% of the variance in health. Self-care alone accounted for 59% of the variance in health. A forward multiple regression was used to identify the specific subscales of self-care agency which contributed the most to the variance in health.

The self-care agency subscales which were entered in a forward regression were SCA1, SCA5, and SCA6 in addition to self-care. Self-care ($\beta = .7649$; $p \leq .0001$) accounted for 59% of the variance of health, while SCA1 (ego strength and health decision-making capability) increased the explained variance to 61% ($\beta = .6132$; $p \leq .0001$).

Summary of the Findings

The sample was described in this chapter. Descriptive analyses including frequencies, percentages, means, modes, and standard deviations were utilized to summarize the following variables: age, educational level, school attendance, siblings, birth order, health problems, ethnicity, income, marital status, number of people living at home, father's presence in the home, and the number of times the subject had moved during the last year. In addition, parametric analyses using Pearson correlations and multiple regressions were utilized to identify associations between self-care agency, self-care, and health.

A total of 100 pregnant adolescents was examined to determine the relationships between basic conditioning factors, self-care agency, self-care, and health. The independent variables were self-care agency and self-care. The dependent variable was health. Denyes' Self-Care

Agency, Self-Care and Health Instruments were used to collect the data. A Demographic Data Sheet was used to measure the basic conditioning factors.

The subjects varied in age from 14.25 to 20.00 years with a mean age of 17.48 years. Half the sample was (50; 50%) black and 78 (78.8%) were single. Most of the adolescents did not have jobs (86; 86%). However 60 (60.6%) did attend school. The family income was low with 41 (46.7%) indicating a monthly income between $0-$999. The minimal educational level for the entire population was the sixth grade with most of the adolescents attending the 10th grade (28.8%). Most of the adolescents were first born (46; 46.9%) and had two (28; 28.4%) or three (22; 22.3%) siblings and lived with four other people at home (24; 24.3%). A majority (70; 70%) of the adolescents did not currently live with the father of the baby. Thirty-four (34%) reported having moved once in the last year. Only 18 (18.2%) reported current health problems, while 81 (81.8%) indicated no health problems.

No significant correlations were found between selected basic conditioning factors (e.g., age, birth order, siblings, marital status, and ethnicity) and self-care agency. However, significant positive correlations were found between several self-care agency subscales--ego

strength and health decision making capability (r = .7505; $p \leq .0001$); health knowledge and decision making capability (r = .7086; $p \leq .0001$); feelings (r = .5036; $p \leq .0001$); and attention to health (r = .5788; $p \leq .0001$)--and self-care. A significant positive correlation was found between self-care and health (r = .7650; $p \leq .0001$).

Several self-care agency subscales (e.g., ego strength and health decision making, feelings, physical energy levels and attention to health) were used in a multiple regression to explain the variance in self-care (R^2 = .5611; β = .63; $p \leq .0001$). Ego strength and health decision-making capability (SCA1) accounted for 56% of the variance in self-care. Attention to health (SCA6) increased the explained variance in health to 59% (β = .20; p = .0170).

Additional multiple regressions were used to construct a more comprehensive prediction of health. Together self-care agency and self-care accounted for 61% of the variance in health. The self-care agency subscale which contributed the most to health was SCA1 (ego strength and health decision-making capability). Together SCA1 and self-care explained 60% of the variance in health.

CHAPTER 5

SUMMARY OF THE STUDY

The purpose of this study was to investigate the relationship between several basic conditioning factors (e.g,. age, siblings, birth order, marital status, and ethnicity) and self-care; self-care agency and self-care; and self-care and health in the pregnant adolescent. The problem of the study, the model, and research methodology described in previous chapters are reviewed. The chapter continues with a discussion of the findings of the study along with the conclusions and implications. Recommendations for further study conclude this chapter.

The model used in this study was Orem's (1985) general theory of nursing. The problem formulated for the study was: What is the relationship between basic conditioning factors, self-care agency, self-care, and health in pregnant adolescents, ages 11-19 years. Three research questions were formulated based on the problem for the study and Orem's conceptual model. The research questions were:

1. What is the relationship between selected basic conditioning factors (e.g., age, number of siblings,

birth order, marital status, ethnicity) and self-care of the pregnant adolescent?

2. What is the relationship between self-care agency of the pregnant adolescent and self-care?
3. What is the relationship between self-care of the pregnant adolescent and health?

In the review of the literature self-care agency, self-care, and health were defined and explored in relation to Orem's model and other related research. The development and analyses of several self-care agency instruments were discussed. Erikson's, Piaget's, Kohlberg's and Freud's theories were briefly addressed in relation to the developmental tasks of the adolescent. The literature review concluded with a summary of the research related to the pregnant adolescent.

Summary

A descriptive correlational design was used to conduct this study. A convenience, nonprobability sampling technique was employed to obtain a sample of 100 pregnant adolescents between 14 and 19 years of age. The subjects were obtained from prenatal adolescent clinics in two county hospitals with health care provided by an affiliated medical school. Denyes' Self-Care Agency (DSCAI), Self-Care

(DSCPI), and Health Status Instruments (DHSI) were used to measure self-care agency, self-care, and health. In addition, the Demographic Data Sheet was used to obtain information regarding the conditioning factors. The reliability and validity for Denyes' three instruments was determined in a pilot study and again in the actual study.

Criteria for the protection of human subjects were maintained. Agency approval was obtained. The pregnant adolescents were approached during regular clinic hours and asked to participate in the study. When feasible, the adolescents were given privacy while the questionnaires were completed. Of the 114 subjects who were asked to participate, 100 completed the four questionnaires.

Frequencies, percentages, means, modes, ranges, and standard deviations were the descriptive statistics used to report age, educational level, school attendance, job, siblings, birth order, health problems, ethnic background, income, marital status, people living with the subject, father's presence in the home, and the number of times the subject had moved in the last year.

The Pearson product-moment correlation was used to examine the relationship between age and self-care; number of siblings and self-care; self-care agency and self-care; and self-care and health. A Spearman rho correlation

coefficient was used to examine the relationship between birth order and self-care. An analysis of variance (ANOVA) was used to examine the differences in self-care according to ethnicity. Several multiple regressions were used to further analyze the relationship between self-cage agency, self-care and health.

Discussion of Findings

This study was focused on one dependent variable: health. The independent variables were self-care agency and self-care. Findings of the study, as described in the previous chapter, are discussed according to the basic conditioning factors and the three research questions. Results of the descriptive data analyses and research questions are compared to results of previous research with regard to adolescent pregnancy.

Basic Conditioning Factors

The subjects varied in age from 14.25 to 20 years with a mean age of 17.48 years. Age was included as a demographic variable because of the differences in biological, psychosocial, and cognitive development during adolescence. Some authors divide adolescence into early (12 to 14 years), middle (15 to 17 years) and late (18 to 21) phases (Cobliner, 1981; Neinstein, 1984). Each of these phases has

distinct biological, psychosocial, and cognitive abilities and skills which the adolescent should achieve in order to successfully progress to the next developmental phase. Most (n = 51; 51%) of the adolescents in this study were in the middle adolescent group. Six (6%) were less than 15 years old which placed them in the early adolescent group. Forty-three (43%) were in the late adolescent group.

In addition, the age of the adolescent has implications related to pregnancy outcome. Some investigators (Zuckerman, Walker, Frank, Chase, & Hamburg, 1984) have found that while maternal mortality is increased in pregnant adolescents, the young adolescent, less than 15 years of age has significantly higher maternal mortality. Only 18% (N = 99) of the adolescents in this study indicated that they were experiencing health problems. Of these, only 2 (2%) were in the early adolescent group (less than 15 years old), while 6 (6%) of the middle group and 10 (10%) of the older group indicated health problems.

Some investigators have found that pregnancy induced hypertension, prematurity, nutritional deficiencies, cephalopelvic disproportion, and increased neonatal death rates were more common among adolescents than among women who delayed pregnancy and childbirth until their 20s (Baldwin & Cain, 1980; Dott & Fort, 1976; McAnarney &

Theide, 1981). Other investigators (Kaltreider & Kohl, 1980; Merrit, Lawrence, & Naeye, 1980) found that the amount and quality of prenatal care, socioeconomic status, race, and shortened gestation may be confounding variables which lead to conflicting reports on adolescent pregnancy complications.

Investigators have found that reactions to and acceptance of pregnancy are often dependent on the social meaning of the event for the individual. Many factors, which are primarily social and economic, influence the way black women regard pregnancy. However, pregnancy is usually seen as a state of wellness. Mexican American women view pregnancy as a natural condition (Aneshensel, Becerra, Fielder, & Schuler, 1990). In this study, 18 (30.5%) adolescents indicated they had health problems; 9 (50%) of the black adolescents, 4 (22.2%) of the Hispanic, and 5 (27.8%) of the white women reported having health problems.

While many of the adolescents in this study had medical complications (sexually transmitted diseases, premature labor, and anemia), generally the adolescents' perception was that of having "no health problems." None of the common health problems associated with adolescent pregnancy (pregnancy induced hypertension and nutritional deficiencies) were identified by this group as a problem. This

finding supports the research of Eiser, Patterson and Eiser (1983) who found that adolescents typically viewed health as being more than simply the absence of illness; being healthy included living up to one's potential, being able to function (physically, mentally, socially), and experiencing positive emotional states. In fact, "not being sick" reflected less than 30% of the content of their concept of health (Millstein & Litt, 1990).

The erosion of marriage has been especially evident among African-Americans. Until the 1950s, blacks married as early as whites. However, over the past several decades, blacks have been more likely to postpone marriage (Cherlin, 1981; Farley & Allen, 1987). In 1987, only 12% of white women in their early 30s had never been married, in comparison to 34% of blacks (U. S. Bureau of the Census, 1988). While teenage parenthood has not been more common, single parenthood among teenagers has become more prevalent (Hofferth & Hayes, 1987). In 1985, 13% of all babies were born to teenagers, of whom about three-fifths were unmarried (National Center for Health Statistics, 1987). In this study, 78 (78.8%) of the adolescents were single. These statistics support the findings of the National Center for Health Statistics (1987) which indicated that most pregnant adolescents are unmarried. In this study, fewer black

(n = 1; 4.8%) adolescents were married than either the white (n = 7; 33.3%) or Hispanic (n = 13; 61.9%) group.

The results of this study supported the findings of a survey by Smith (1984), who found that the majority of adolescent mothers received no support, neither financial nor emotional, from the father of the child. An indication of this lack of support may be found in the small number (n = 30; 30%) of fathers presently living with the adolescent mother.

Schooling was included as a demographic variable because investigators have found that teenage parenthood generally has negative effects on school continuation for both blacks and whites alike, especially for females (Furstenberg, Brooks-Gunn, & Morgan, 1987; Pallas, 1984). In addition, less able, older, and disadvantaged students as well as youth from the South and West are more likely to drop out of school (Furstenberg et al., 1987). Investigators have found that adolescent mothers have been more likely to drop out of high school, even when compared with women of similar socioeconomic backgrounds and academic aptitude who postponed childbearing (Card & Wise, 1981; Mott & Marsiglio, 1985). The findings of the previous investigators were supported in this study. Most (n = 60; 60.6%) of

the adolescent mothers in this study did not attend school during the year.

While some investigators found that the formation of work-related orientations and identity were critical in achieving the developmental tasks of adolescence (Erikson, 1963), others identified achievement-related disadvantages of early employment. Greenberger and Steinberg (1986) found that employment was associated with punctuality, dependability, and personal responsibility. Consistent with these findings, D'Amico (1984) reported evidence from the National Longitudinal Survey of the Labor Market Experience of Youth that employment of less than 20 hours per week lessened the likelihood that a student would drop out of school. In 1988, Marsh (cited in Feldman & Elliott, 1990) found that the average number of hours worked during high school had a negative effect on 16 of 22 outcomes, including high school attendance, scores on standardized achievement tests, staying out of trouble, number of academic credits obtained, academic self-concept, completion of homework, educational aspirations, and the likelihood of going to college.

In this study, 14 (14%) of the adolescents were employed, while 86 (86%) were unemployed. Of the 13 employed adolescents who answered both the questions regarding employment and school attendance, 8 (61%) attended

school and 5 (39%) did not. Of the 86 adolescents who were not employed, 52 (60%) attended school and 34 (40%) did not.

There is some suggestion in the literature that familial strain may be more characteristic of relations between firstborn children and their parents (Hetherington & Camara, 1984). The reasons remain unclear, although studies of parental images of adolescence suggest that parents may have different expectations of their firstborn than they do when their subsequent children become teenagers (Buchanan et al., 1988). In this study, 46 (46.9%) of the adolescents were the first born in their family.

Minority group families differ from majority families in their size, structure, composition, and their reliance on kinship networks (McLanahan, 1983; Portes, Dunham, & Williams, 1986). Large and extended families are more common among minorities than among non-Hispanic whites (Wilson, 1986, 1989). In 1980, families with five or more members accounted for 31% of Hispanic households but only 17% of the general population (Keefe & Padilla, 1987; Moore, 1981). In addition, African-Americans and Hispanics interact more with grandparents, aunts, uncles, cousins, and other relatives than do non-Hispanic whites. The support system among African-American family members is more active

than that of other groups (Hofferth, 1984, Mindel, 1980; Stack, 1974; Tienda & Angel, 1982).

Single teenage mothers particularly benefit from the availability of other adults to serve as surrogate parents. Research indicates that African-American adolescent mothers in extended families are more likely to remain in school than their peers who lack this support, and they are less likely to rely on welfare. These young mothers also report more peer group support and more often say they feel in control of their lives than do African-American adolescent mothers living independently (Colletta & Lee, 1983; Furstenberg & Crawford, 1978).

In this study (n = 99), the largest group of adolescents lived with four other people in the home (n = 24; 24.3%). Seventeen adolescents (17.2%) lived with two people, and 16 adolescents (16.2%) lived with five other people. The mean family size of the Hispanic adolescent was 3.78 people. The black adolescents' family had 3.96 people, while the white adolescents' family had 2.35 people. Findings from this study support the findings of other studies that large families are common among minorities (Wilson, 1986, 1989).

The number of moves a family makes may be an indication of family stability. A move to a new neighborhood can lead to stress for the family and the adolescent (Slaughter,

1988). In this study, the sample reported a range of 8 moves in one year. The mean of the total group was 1.34 moves in a year.

Research Question 1. What is the relationship between selected basic conditioning factors (e.g., age, number of siblings, birth order, marital status, ethnicity) and self-care of the pregnant adolescent?

The model used in this study was Orem's (1985) general theory of nursing. The relationship between basic conditioning factors and universal self-care is stated in one of Orem's propositions. "Universal self-care requisites and ways of meeting them may be modified by the age, sex, developmental or health state of individuals" (Orem, 1985, p. 36). Basic conditioning factors are the variables which "potentially influence one's ability to carry out self-care" (Orem, 1985, p. 221). These conditioning factors include individual, familial, sociocultural, and health conditions. Specifically these factors may include age, sex, developmental state, conditions of living, family system factors, sociocultural orientation, patterns of living, health state, and health care system factors (Orem, 1985).

In this study, none of the selected basic conditioning factors (age, number of siblings, birth order, marital

status, ethnicity) significantly correlated with self-care. This finding partially supports the results obtained from other investigators (Denyes, 1988; Frey & Denyes, 1988).

Denyes (1988) reported findings from an aggregate sample (n = 369) of adolescents with diverse socioeconomic, cultural, and illness/wellness status which revealed that only two basic conditioning factors significantly correlated with self-care agency. These basic conditioning factors were health problems (r = .12; p = .018) and the number of siblings (r = -.13, p>.05) (Denyes, 1988). These findings indicated that adolescents with no health problems had higher levels of self-care agency. In addition, adolescents with fewer siblings had higher levels of self-care agency. Although not significant, a negative correlation was found between the number of siblings and self-care agency in this study.

In a study designed to examine several relational hypotheses within Orem's model, Frey and Denyes (1989) examined the relationship between basic conditioning factors and universal self-care in 37 adolescent diabetic patients. These investigators found that only two basic conditioning factors, age and health state, significantly correlated with and accounted for 35% of the variance in universal self-care

behavior. Health state (β = -.45) were a stronger predictor of self care than age (β = -.39) in this study.

Therefore, the published studies to date have identified only two conditioning factors, age and health problems, which help to explain the variance of self-care. However, the results of this study did not support these published findings.

Research Question 2. What is the relationship between self-care agency of the pregnant adolescent and self-care?

According to Orem, self-care requires self-care agency. Self-care agency is "the power of an individual to engage in the estimative and production operations essential for self-care" (Nursing Development Conference Group, 1979, p. 122).

The significant correlation (r = .7648, $p \leq .0001$) between self-care agency and self-care found in this study supports the findings of Denyes (1988) who found a positive correlation (r = .38, $p \leq .0001$) between these concepts. In this study, the self-care agency subscales, which were significantly correlated to self-care included the following: (SCA1) ego strength and health decision-making capability (r = .7505; $p \leq .0001$); (SCA3) health knowledge and decision-making experience (r = .7086; $p \leq .0001$); (SCA5) feelings (r = .5036; $p \leq .0001$), and (SCA6) attention to

health (r = .5788; $p \leq .0001$). The self-care agency subscales which were not significantly correlated with self-care were (SCA 2) valuing of health (r = -.1501; p = .136) and (SCA 4) physical energy level (r = .0984; p = .330).

The value adolescents place on health has been studied from several viewpoints. Investigators (Merrit et al., 1980) have found that despite expressed concerns about health, adolescent do not behave in ways congruent with these expressed concerns. Like adults, adolescents probably underestimate the potentially negative consequences of their behavior (Millstein & Irwin, 1985).

A stepwise multiple regression revealed that 56% (r = .5631; $p \leq .0001$) of the variance of self-care was explained by SCA1, ego strength and health decision-making capability. SCA6, attention to health, and SCA1, ego strength and health decision making, accounted for 59% (r^2 = .5882; β = .20; p = .0170) of the variance of self-care.

Research Question 3. What is the relationship between self-care of the pregnant adolescent and health?

Health, described by Orem (1985), is the human state of being whole or sound, characterized by "functional and structural integrity . . . a progressive integrated

development of a human being as an individual unity moving toward higher and higher levels of integration" (p. 76). It was postulated that health was an outcome or goal of self-care.

A significant correlation was found between self-care and health (r = .7650, $p \leq .0001$). This finding supported Orem's and Denyes' proposed relationship between these two concepts.

Frey and Denyes (1989) further studied the relationship between basic conditioning factors, self-care and health among diabetic adolescents. Denyes found that health symptoms, the only basic conditioning factor with a significant zero-order correlation with health (r = -.35), and self-care (β = -.56) were significant predictors of health. Together, these two factors accounted for 64% of the variance in health.

In another study using an aggregate sample (n = 369) of adolescents, Denyes (1988) found that both self-care (β = .505, $p \leq .001$) and self-care agency (β = .219, $p \leq .001$) were significant predictors of the general health state. Together these two variables accounted for 39% of the variance of health, with self-care alone accounting for 35%. In this study, self-care and self-care agency accounted for 61% of the variance of health, with self-care alone

accounting for 59% of the variance. Findings from this study support the findings of Denyes (1988).

Age, Ethnicity, and Marital Status Compared with Extrapolated National Statistics

Comparing demographic characteristics of the sample in this study with characteristics of the nation's adolescents extrapolated from national statistics, both similarities and differences were found. In the study sample, 6% of the adolescents were 12-14 years old, 51% were 15-17 years old, and 43% were 18-19 years old. National statistics for 1988 indicated that 35% of adolescent females were 12-14 years old, 38% were 15-17 years old, and 27% were 18-19 years old (U.S. Bureau, 1988b). The study sample underrepresented the 12-14 year old U.S. population by a factor of -5.83, overrepresented the 15-17 year old population by a factor of +1.84 and the 18-19 year old population by a factor of +1.48. The convenience sample underrepresented the 12-14 year old group for multiple reasons which may include fewer admissions to the county clinics, less sexual activity, and lower fertility rates. In 1985, national statistics estimated that pregnant adolescents <15 years old comprised 3% of the pregnant adolescent population, while 15-17 year olds comprised 36.9%, and 18-19 year olds comprised 60.1% (Henshaw, Kenney, Somberg, & Van Vort, 1989). The

convenience sample underrepresented all ethnic groups of pregnant adolescents when compared with national statistics.

The racial ethnicity of the female adolescent sample 11-19 years was 50% black, 18% white, and 32% Hispanic. Extrapolations from national statistics reported by the U.S. Bureau of the Census (1988b) indicated that 16% of the female adolescent population, ages 10-19 years, was black, 73% was white, and 11% was Hispanic. Thus, the convenience sample of this study overrepresented the 1988 U.S. black population by a factor of +3.13 and the Hispanic population by a factor of +2.91, and underrepresented the white population by a factor of -4.06. In 1985, extrapolations from national data indicated the racial ethnicity of pregnant females 10-19 years were as follows: 63.3% was white, 30.6% was black, and 6.1% was Hispanic (Henshaw et al., 1989).

In the convenience sample, 78.8% of the adolescents were single, while 21.2% were married. Nationwide in 1984, extrapolated data indicated the proportion of all females under age 20 who remained single was 93%, while only 7% were married (U.S. Bureau, 1988a). In this sample, 96.2% of the black adolescents were single, while nationally, in 1984, extrapolated data showed that 98% of black women 15-19 years old had never married. The present sample overrepresented

the married adolescent female population by a factor of +3.00. This overrepresentation may reflect the Hispanic group in this study; Hispanic adolescents are more likely to be married than either whites or blacks (U.S. Bureau, 1988a).

Conclusions and Implications

The following conclusions and implications are proposed based on the findings of this study.

1. Age, number of siblings, birth order, marital status, and ethnicity appear to have no effect on self-care in the pregnant adolescent.
2. Self-care agency positively affects self-care in the pregnant adolescent. Because self-care agency was positively related to self-care, emphasis on factors related to self-care agency seems warranted. Use of an instrument to assess self-care agency in adolescents may be useful in assisting nurses and adolescents to mutually evaluate self-care agency strengths and limitations.
3. In the pregnant adolescent ego strength and health decision-making capability; and health knowledge and decision-making experience positively affect self-care. Because of the positive relationship between these

concepts, the nurse can delineate measures which will help the adolescent to develop these abilities.

4. Self-care has a positive affect on health in the pregnant adolescent. Because of the positive relationship between self-care and health, the nurse can delineate self-care interventions which will assist the adolescents to become more actively involved in health promoting activities.

Recommendations for Further Study

Recommendations for future research regarding self-care agency, self-care, and health in the pregnant adolescent were identified as follows:

1. Nurses/health care providers should do additional descriptive studies in order to identify the conditioning factors which may affect self-care. The identification of these conditioning factors could assist health care providers in developing a predictive model. This model could aid health care providers in identifying adolescents who need support in developing self-care skills.
2. This study should be replicated using a random sampling of pregnant adolescents in other geographic locations, ethnic backgrounds, and socioeconomic levels to compare

their self-care agency and self-care with other adolescents.

3. Other studies in which Denyes' Self-Care Agency, Self-Care Practice, and Health Status Instruments are used should be undertaken to compare findings and further analyze reliability and validity among pregnant adolescents.
4. To encourage the development of self-care agency among adolescents, Denyes' Self-Care Agency Instrument should be used by health professionals to assist them in planning and providing appropriate interventions.
5. Further study of health knowledge, decision making, and ego strength should be undertaken in order to analyze the interactive effects of these factors on self-care.
6. An investigation of the strategies to increase self-care agency (ego strength and decision-making in particular) and self-care among adolescents should be undertaken.

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APPENDIX A

AGENCY APPROVAL

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77030

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO Dorothy Stonebraker
a student enrolled in a program of nursing leading to a Doctoral Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

The Relationship Between Self-Care Agency, Self-Care and Health in the Pregnant Adolescent.

The conditions mutually agreed upon are as follows:

1. The agency ([redacted]) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency ([redacted]) (may not) be identified in the final report.
3. The agency (wants) ([redacted]) a conference with the student when the report is completed.
4. The agency is ([redacted]) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: July 10, 1991

Signature of Agency Personnel

D. Stonebraker
Signature of Student

Teresa A. Shuckworth
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student; First cooy - agency; Second copy - TWU College of Nursing.

/bc

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
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4. The agency is ([redacted]) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: _____ Signature of Agency Personnel

D. Stonebraker
Signature of Student

Jerry A. Brockmeyer
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

/bc

APPENDIX B

INFORMED CONSENT

ADOLESCENT CONSENT FORM

I understand the purpose of this study is to increase health professionals' understanding of pregnant teenagers' self-care and health. As a participant, I was informed that I will be expected to complete four questionnaires about health, including a personal information sheet which will take me about 45 minutes to complete. I hereby authorize Dee Stonebraker to administer the questionnaires. The procedures listed in this paragraph have been explained to me by Dee Stonebraker.

I understand that a risk to me is that I may experience some embarrassment and apprehension in answering the questions and about how the results of the will be reported. I understand that while I am answering the questionnaires my privacy will be maintained because a private area will be provided where I can answer the questionnaires and ask questions of the nurse researcher. To prevent the improper release of confidential data, the investigator will use code numbers to identify participants. In addition, no information from my questionnaires will be given to my parents, school or hospital. Only grouped data will be reported.

I understand that although my participation in this study will not directly benefit me, it will help nurses to understand more about pregnant adolescents' health behaviors. This information will help nurses plan care so that pregnant adolescents can receive the best health care possible.

I understand that I am free to join or to withdraw from the study at any time without this affecting the care I will receive at the clinic.

I understand in the event of injury resulting from this research, Baylor College of Medicine and Texas Woman's University are not able to offer financial compensation or to absorb the cost of medical treatment. However, necessary facilities, emergency treatment and professional services will be available to research subjects, just as they are to the community generally. My signature below acknowledges my voluntary participation in this research project, but in no way releases the investigator from professional and ethical responsibilities to me. I understand that as a pregnant adolescent I am considered emancipated and can participate in research without parent/legal guardian consent. I have read and will be provided a copy of this form.

An offer to answer all of my questions regarding the study has been made. If alternative procedures are more advantageous to me, they have been explained. A description of the possible attendant discomfort and risks reasonably expected have been discussed with me.

I can call Dee Stonebraker, at 663-7878, after 5:00, p.m., if I have any questions.

Date:_____

_____ Participant's Signature

_____ Investigator's Signature

_____ Witness

APPENDIX C

QUESTIONNAIRE PACKET

SUBJECT #_____ DATE_____

DEMOGRAPHIC DATA SHEET

Please fill in the blank, place an X in the appropriate space or circle your answer where requested.

1. What is your age?_____

2. What is your birthdate?_____
   Month Day Year

3. What grade are you in school?_____
   (Fill in the number of your grade in school)

   If not presently in school, what grade did you complete last? _____

4. Do you go to school during the school year? Yes No
   (Circle yes or no)

5. Do you have a job at the present time? Yes No
   (Circle yes or no)

6. How many brothers and sisters do you have? (Fill in the total number of brothers and sisters together)
   _____

7. What is your place in the birth order in you family? (for example, 1st born, 2nd born.....)_____

8. Do you have any health problems? (by health problems, I mean anything you think is a health problem) Yes No (Circle)

   If yes, please describe_____

9. Ethnic Background
   _____a. White c._____ Hispanic
   _____b. Black d._____ Other (please specify)

10. Approximately how much money does your family make in a month?
    _____a. $0 - $499/month d. _____ $1500-$1999/month
    _____b. $500-$999/month e. _____ $2000-$2499/month
    _____c. $1000-$1400/month f. _____ Don't know

11. Marital Status: (Circle one) Single Divorced
    Married Widowed

12. How many people live in the home with you?_____

13. Does the baby's father live in the home with you?
    _____a. Yes b._____ No

14. How many times have you moved in the last year? _____

ID#_____

DENYES SELF-CARE PRACTICE INSTRUMENT (DSCPI)

INSTUCTIONS

A. Please answer the following questions by writing in the number that best answers the question for you.

B. There are no right or wrong answers; please give the answers that best fit you.

C. There may be some questions that seem similar; it would be helpful if you would answer them anyway.

D. Please feel free to write comments and explain our answers in the margins and on the backs of pages.

E. Whenever there is a question about your health, please take it to mean whatever it means to <u>you.</u>

For each question please write in the percentage from <u>0%</u> to <u>100%</u> that best answers the question for you. <u>0%</u> would mean "none of the time" or "never", while <u>100%</u> would mean "all of the time" or "always." Numbers in between would mean amounts between never and always. You might want ~~to think~~ about it as a line with <u>0%</u> at one end, with <u>100%</u> at the other end, and with the other numbers in between like this:

/_____/_____/_____/_____/_____/_____/_____/_____/_____/_____/_____/
0 50 100

_____1. What percent of the time do you do things that are good for your health?

_____2. What percent of the time do you take good care of your health?

_____3. What percent of the time do you follow through on decisions you make about your health?

_____4. What percent of the time do you <u>put off</u> doing things that would be good for your health?

_____ 5. What percent of the time do you ear breakfast?

_____ 6. What percent of the time do you eat the kinds of foods you think are necessary for your health?

_____ 7. What percent of the time do you eat a balanced diet?

ID #_____

_____ 8. What percent of the time do you do things to maintain or achieve good nutrition for yourself?

_____9. What percent of the time do you do things to get the amount of activity you think is necessary for your health?

_____10. What percent of the time do you do things to get the amount of rest you think is necessary for your health?

_____11. What percent of the time do you do things to get the amount of time alone you think is necessary for your health?

_____12. What percent of the time do you do things to get the amount of time alone you think is necessary for your health?

_____13. What percent of the time do you do things to get the amount of time with others that you think is necessary for your health.

_____14. What percent of the time do you do things to maintain or achieve a balance between time alone and time with others?

_____15. What percent of the time do you do things to keep your bladder and bowel habits normal?

_____16. What percent of the time do you do things to keep yourself safe?

_____17. When you feel stressed, what percent of the time do you do things to feel less stressed?

ID #_____

DENYES HEALTH STATUS INSTRUMENT (DHSI)
ITEM SUBSET

A. Please answer the following questions by writing in the number that best answers the questions for you.

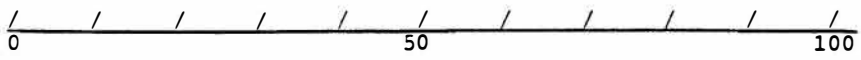
B. There are no right or wrong answers; please give the answer that best fits you.

C. There may be some questions that seem similar; it would be helpful if you would answer them anyway.

D. Please feel free to write comments and explain your answers in the margins and on the backs of pages.

E. Whenever there is a question about your health, please take it to mean whatever it means to you.

Please write in a number or percentage from 0 to 100 that best answers the question for you. 0 or 0% would mean "none" or "not at all" or "never" and 100 or 100% would mean "all" or "totally" or "always." Numbers in between would mean answers between none and all. You might want to think about it as a line with 0 or 0% at one end, 100 or 100% at the other end, and all other numbers in between like this:



_____1. On a scale of 0 to 100, how healthy do you think you are now?

_____2. On a scale of 0 to 100, how healthy do you think you are most of the time?

_____3. On a scale of 0 to 100, how satisfied are you with your present health status?

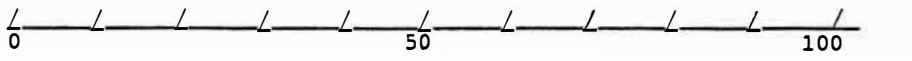
_____4. On a scale of 0 to 100, how normal or healthy do you think your bladder and bowel functioning are?

_____5. On a scale of 0 to 100, how good a balance do you have between rest and activity?

_____6. On a scale of 0 to 100, how rested do you usually feel when you wake up?

_____7. On a scale of 0 to 100, how good a balance do you have between the amount of time you spend alone and time with others?

ID #_____



_____8. On a scale of 0 to 100, how good are you at avoiding things or situations that are harmful or dangerous to your health?

_____9. What percent of "perfect health" are you now experiencing?

_____10. What percent of "perfect nutrition" are you now experiencing?

Source#_____

Card #_____

ID#_____

DENYES SELF-CARE AGENCY INSTRUMENT

A. Please answer the following question by writing in the number that best answers the question for you.

B. For most questions there are no right or wrong answers. Please give the answer that best fits you.

C. There may be some question that seem similar; it would be helpful if you would answer them anyway.

D. Please feel free to write comments and explain your answers in the margins and on the backs of pages.

E. Whenever there is a question about your health or health problems, please take it to mean whatever health means to you.

Please answer the questions on the next few pages by writing in a number from 0 to 100 that best answers the question for you. 0 would mean "none" or "not at all" or "nothing" and 100 would mean "everything". Numbers in between would reflect answers between nothing and everything. You might want to think about it as a line with 0 at one end, 100 at the other end, and all the other numbers in between like this.

0 50 100

You can select any number from 0 to 100 that you think best answers the question for you.

_____8. On a scale of 0 to 100, how much do you know about your body and how it works?

_____9. On a scale of 0 to 100, how much do you know about eating in relation to your own health?

_____10. On a scale of 0 to 100, how much do you know about physical exercise in relation to your own health?

_____11. On a scale of 0 to 100, how much do you know about sleep and rest in relation to your own health?

_____12. On a scale of 0 to 100, how much do you know about smoking in relation to your own health?

ID#_____

_____13. On a scale of 0 to 100, how much do you know about stress in relation to your health?

_____14. On a scale of 0 to 100, how much do you know about your personal strengths?

For the following questions the wording changes some; please continue to write in any number form 0 to 100 that your think best answers the question for you. 0 would mean "not at all" while 100 would mean "totally".

_____15. On a scale of 0 to 100, how aware are you of your own sexuality?

_____16. On a scale of 0 to 100, how aware are you of your feelings?

_____17. On a scale of 0 to 100, how able are you to describe the different feelings you experience?

_____18. On a scale of 0 to 100, how able are you to talk about your feelings?

_____19. On a scale of 0 to 100, how much experience have you had in making decisions about your health?

For the questions on the next few pages please write in the percentage that best answers the question for you. You are to select numbers from 0% to 100% for your answers to the questions. 0% would mean "never" or none, while 100% would mean "all". The numbers in between would reflect amounts between none and all. You might want to think about it as a line with 0% at one end, with 100% at the other end. and with all the other numbers in between like this:

0% 50% 100%

You can select any number form 0 to 100 that you think best answers the question for you.

_____% 20. What percent of the time do you think you are capable of making good decisions about your own health?

_____% 21. What percent of the time do you think clearly and logically about your own health?

ID#_____

_____% 22. What percent of the time do you think you are in touch with what's going on with your health?

_____% 23. What percent of the time do you think about your health?

_____% 24. What percent of the time does a lack of information interfere with your taking care of your health?

_____% 25. What percent of the time do you feel too fatigued to take care of your own health?

_____% 26. What percent of the time do you have good feelings about yourself?

_____% 27. What percent of the time do you feel confused or unsure about what you are feeling?

_____% 28. What percent of the time do you feel proud about doing things well?

_____% 29. What percent of the time do you feel good about your body?

_____% 30. What percent of the time do you think you have control over your own health?

_____% 31. What percent of the time do you think about what you might be like in the future?

_____% 32. What percent of the time do your friends say or do things to encourage you to take care of your own health?

_____% 33. What percent of the time does your family say or do things to encourage you to take care of your own health?

_____% 34. When you need health information, what percent of the time are you willing to ask for it?

_____% 35. What percent of the time does a lack of physical strength interfere with your taking care of your health?

_____% 36. What percent of the time do your peers pressure you into doing things that are not good for your health?

_____% 37. What percent of the time do you feel good about yourself?

ID#_____

_____% 38. What percent of the time do you feel good about doing things well?

_____% 39. What percent of the time do you make good decisions about your own health?

For the last few questions the wording changes again. Please answer these questions by writing in whatever numbers you think best answer the questions for you.

_____ 40. How many things do you value more than your own health? (Fill in the number of things you value more than your health)

_____ 41. On the average, how many things do you think your family values more than their own health? (Fill in the number of things your family values more than their health)

_____ 42. On the average, how many things do you think your friends value more than their own health? (Fill in the number of things your friends value more than their own health)

APPENDIX D

AUTHOR'S PERMISSION TO USE INSTRUMENT

Wayne State University
College of Nursing

5557 Cass Avenue
Detroit, Michigan 48202
(313) 577-4085

February 16, 1990

Dee Stonebreaker
4114 Rice Blvd
Houston, TX 77005

Dear Ms. Stonebreaker:

I was pleased to have the opportunity to talk with you about the potential of your using the self-care agency instrument I have developed in your dissertation research on self-care agency and health outcomes with pregnant adolescents at Texas Woman's University. I have enclosed a copy of this instrument, the Denyes Self-Care Agency Instrument (DSCAI) along with scoring instructions, reliability and validity data (that is constantly being updated so contact me if you need more), a listing of some relevant references, and code book (data dictionary) information.

As I mentioned, in addition to the self-care agency measure, I have developed and tested two companion instruments to measure self-care practices (Denyes Self-Care Practice Instrument--DSCPI) and health status (Denyes Health Status Instrument--DHSI) in adolescents. These instruments, like the self-care agency measure, are self-report in nature and based on Orem's work. As you expressed an interest in reviewing these measures, I have enclosed copies of them as well.

As I hold the copyright for the instrument(s) you are requesting to consider for use, and am continuing with the development and use of them, I will make several requests of you in return for sharing the instruments with you. First, I would ask that prior to using them or sharing them with others that you discuss with me the plans you have for their use. (I would appreciate an update on your plans in a brief note--or copy of research questions, title of study, or proposal materials--anything you feel comfortable sharing as you go along). Secondly, I would ask that you be attentive to including the copyright information on any instrument copies you use. Finally, I would ask that you share with me raw data that you obtain from use of the instruments. I have enclosed a code book/data dictionary that I have used both because I am hopeful that it may be assistive to you in your use of the instrument, and because it would be especially helpful if the data were returned to me coded in that format or one similar. The major issue is that what I need for aggregate analysis is the actual item scores, rather than just the scale totals, so in whatever form would be easiest for you to share is fine. I am in the continuing process of compiling

aggregate data files that will enable me to further strengthen the reliability and validity support for the instruments, and would appreciate your assistance with this. I would not use those data without clearly crediting your work, and would request only those data from my instruments and any accompanying demographics that may assist in comparing them with other sample data. I would, of course, be very interested and pleased to receive copies of any reports/papers you prepare in which your work with the instrument is described. However, the major piece that I am requesting is that the actual raw data from the instruments (and accompanying demographics) be made available to me. I am both eager to be supportive of your work, and cognizant of concerns people may have about "sharing" data, thus, if you have any concerns or questions about the instrument or about my requests, I would be happy to discuss them further with you.

If you wish to contact me by telephone, I can be reached (or a message can be left) at 313-577-4076. I look forward to hearing from you about your research and look forward to continuing contact with you. Good luck as you move forward with your work.

Sincerely yours,

Mary J. Denyes, Ph.D., R.N.
Associate Professor

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