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Prenatal Care Utilization By Pregnant Adolescents In Ottawa, Allegan and Kent Counties

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PRENATAL CARE UTILIZATION BY PREGNANT ADOLESCENTS IN OTTAWA, ALLEGAN AND KENT COUNTIES

By
Sonia Desiree Van Eyl Taylor

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ABSTRACT

PRENATAL CARE UTILIZATION BY PREGNANT ADOLESCENTS IN OTTAWA, ALLEGAN AND KENT COUNTIES

By

Sonia Desiree Van Eyl Taylor

The purpose of this descriptive study was to research the adequacy of prenatal care adolescents in a tri-county area of Michigan received in 1990. The sample included 1583 vital statistics records for births to adolescents 19 years of age and younger, who delivered in Ottawa, Allegan, and Kent Counties in Michigan in 1990. The Adapted Health Belief Model was used to conceptualize and guide the investigation of the variables. Findings revealed that adequacy of prenatal care received by adolescents less than age 15 varied. Younger adolescents received adequate prenatal care 22% of the time and intermediate prenatal care 55% of the time. Nineteen percent of younger adolescents received inadequate prenatal care. Older adolescents received adequate prenatal care 47% of the time. Thirty-eight percent of the older adolescents received intermediate prenatal care. Inadequate prenatal care was received by 13% of the older adolescents. The remaining percentage of the sample had received either an unknown amount of prenatal care or no prenatal care at all. The results of this study seem to indicate a need to improve the adequacy of prenatal care that adolescents receive in this tri-county area, especially for younger adolescents. Possible methods for improving prenatal care include focusing on educating the communities as to health care issues, especially the importance of prenatal care, and encouraging health care professionals to work as the pregnant adolescent's advocate. Future research suggests further evaluation of the demographics of the pregnant adolescent female, and the possible barriers that the adolescent experiences when she does seek out prenatal care.

Dedicated to

my family

Without them, I would not be who I am today

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CHAPTER I

The Problem

Introduction

Each year over one million American women younger than 20 years of age become pregnant. Of the approximately 3.7 million births to women in the United States each year, 15% are infants born to mothers less than 20 years of age (Turnbull, 1991). Adolescents between ages 15-17 years had a pregnancy rate of 71.1 per 1,000 females in 1985 (U.S. Public Health Service [USPHS], 1989). In 1988, 15-19 year old females had a birth rate of 53.6 per 1000 adolescents with a birth rate for 10-14 year olds of 1.3 per 1000 adolescents (U.S. Bureau of Census, 1991).

Adolescents who do decide to maintain their pregnancies have a higher incidence of complications when compared to the adult female population. Complications are greater, as the age of the pregnant adolescent decreases (Hetchman, 1989). It is thought that one of the reasons for the higher incidence of complications among pregnant adolescents is that they receive less adequate prenatal care than their older counterparts (Khwaja, Hisham, Al-Suleiman, & El-Zibdeh, 1986; Savana-Ventura & Grech, 1990). This study investigated adequacy of prenatal care among the adolescent population by age in a tri-county area in Michigan.

When pregnancy occurs in adolescence, there is an increased risk for maternal and neonatal morbidity and mortality (Gabbe, Niebyl, & Simpson, 1986). The increased risk to the fetus includes poor physical development and growth. Complications for the mother include anemias, pre-eclampsia, and cephalopelvic disproportion. Other risks for the adolescent include: anxiety, depression, and hostility (Hetchman, 1989). There are multiple reasons for poor pregnancy outcomes for adolescents. Many of these problems can be addressed in prenatal care.

A major problem for many adolescent females is the lack of sufficient prenatal care or total absence of prenatal care (Gabbe et al., 1986). Prenatal care has been cited as

a major contributing factor in the improved pregnancy outcomes for adult women (Savana-Ventura & Grech, 1990). Nationally, of all live births in 1987, 76% of all mothers had received prenatal care in the first trimester (USPHS, 1989). However, only 53% of pregnant teens received prenatal care in their first trimester, compared to 79% of all 20-39 year old (USPHS, 1989). The purpose of this study was to describe the adequacy of prenatal care received by pregnant adolescents by age of the pregnant adolescent and by county where the infant was delivered.

According to a secondary analysis of data from the National Natality Survey (Singh, Torres, & Forrest, 1985), almost one tenth of all pregnant adolescent females, age 19 and under, delayed initiation of prenatal care until the third trimester of pregnancy or received no prenatal care at all. Of all pregnant adolescents, 50% had no care during the first trimester, 10% had no care during the first or second trimester, and 2.4% had no prenatal care at all (Van Winter & Simmons, 1990). The pregnant adolescent population needs to be included as participating members of prenatal care, equivalent to the adult population. With the health care community participating actively in these goals, it may be possible to decrease maternal and fetal complications (Neeson, Patterson, Mercer, & May, 1983; Scholl, Miller, Salmon, Cofsky, & Shearer, 1987).

Reviewing maternal mortality (Atrash, Konnin, Lawson, Franks, & Smith, 1990) from 1979-1986, it was found that females less than age 15 had a maternal mortality rate of 10 deaths per 100,000 pregnancies. This rate steadily decreased to a low maternal mortality rate of 5 per 100,000 when women were between the ages of 24-29, however, the rate also continued to rise sharply after the age of 35 to 20 deaths per 100,000 live births (Atrash et al., 1990).

Adolescent females under the age of 16 have an increased rate of death during or immediately after pregnancy that is five times greater than women age 20 and over (Hetchman, 1989). There is a higher incidence of life-threatening conditions such as pre-eclampsia, pregnancy induced hypertension, abruptio placenta, cephalopelvic

disproportion and prolonged labor among the teen-age population. This often results in increased invasive procedures such as caesarean deliveries and forceps deliveries (Khwaja et al., 1986).

Infants born to adolescent females are two to three times more likely to be of low birthweight than the infants born to mothers age 25-29 years; they are also twice as likely to die before one year of age (USPHS, 1989). The higher than average infant mortality rate for adolescents is not due to age alone. Other risk factors are associated with being a teen-age mother. Adolescent mothers are more likely than older mothers to be poor and unmarried. They are also shorter in height, weigh less, are less educated, and most importantly, less likely to receive adequate prenatal care (USPHS, 1989).

This delay or lack of prenatal care may be due to several factors or conditions. The factors include denial, fear that the client-provider confidentiality will be breached, fear of discovery of the pregnancy, and no or limited access to adequate prenatal care (Van Winter & Simmons, 1990). Other conditions cited in the delay or lack of prenatal care are lower socioeconomic class, and drug and alcohol use (Gabbe et al., 1986).

In the 1970's, the school of thought in relationship to pregnancy complications during adolescence was related to adolescent females not being developmentally mature. However, more recent research (Scholl et al., 1987) indicates that many of the complications relate to the lack of adequate prenatal care. Adequacy of prenatal care in adolescents appears to be difficult to investigate. It is the expectation that this research can be instrumental in evaluating the current prenatal utilization behaviors of the adolescent population in a tri-county area in Michigan.

Purpose of the Study

The components of prenatal care focus on the mother and the infant. The broad objectives of prenatal care are to promote the health and well-being of the pregnant woman, the fetus, the infant, and the family up to one year after the infant's birth (USPHS, 1989). Three components are included in these objectives: (a) evaluation of

early and continuing risks of the adolescent, (b) health promotion, and (c) medical and psychosocial interventions and follow-up (USPHS, 1989).

Overall objectives of prenatal care in the past have focused on the prevention of pre-eclampsia and other maternal conditions of the fetus and newborn. Currently, the prenatal goals are being developed to incorporate health promotion and well being of the family (USPHS, 1989).

The goal of the National Institute of Health and Human Services is to reduce complications of pregnancy in adolescents to no more than 15 per 100 deliveries from the current rate of 22 hospitalizations per 100 deliveries in 1987 (USPHS, 1991[a]). Many of these complications that occur during pregnancy are not necessarily preventable, but controllable to a certain extent.

Research has addressed prenatal care in programs utilizing a select population, such as inner city residents, minorities, or lower socioeconomic populations (Hardy, King, & Repke, 1989; Scholl, Hediger, Khoo, Healey, & Rawson, 1991). Some studies report on the use of technology and diagnostics in the delivery of prenatal care to evaluate the quality of prenatal care and the subsequent outcomes (Hardy et al., 1989; Leppert & Namerow, 1985; Petitti, Hiatt, Chin, & Croughan-Minihane, 1991; Quick, Greenlick, & Roghmann, 1981). The populations in these programs are small in number and tend to be adult women who have been chosen from a select population. There is minimal current research focusing on the females who have no access to special programs. Adolescents, when they are studied, seem to have poorer access to prenatal care than the adult population.

The purpose of this study was to describe the initiation of prenatal care and the number of prenatal visits as a measure of adequacy of prenatal care utilization by pregnant adolescents by age in a tri-county area. The adolescent population was divided into two groups. This includes pregnant females 14 years of age and younger, and pregnant females, 15-19 years of age. Physically, there are differences between the two

groups. Most adolescent females 15 years and older have gone through menarche and are more apt to be able to conceive with sexual activity (Connell, 1992; Treloar, Boynton, Behn, & Brown, 1970). Adolescents less than age 15 have increased complications. Some researchers have theorized that it is because of their lack of physical development (Connell, 1992).

The results of this study may better guide and direct health care providers who deal with the pregnancies of adolescents in those counties. Onset of prenatal care and the consistency of visits after initiation can guide health care providers in their educational efforts in the community.

Statement of the Problem

The three counties that were the focus of the study were Kent, Ottawa, and Allegan counties in southwestern Michigan. These counties have the fastest growing population in the state. Kent county has the second largest metropolitan area with a population of 484,600 people, a strong industrial base, income per capita of $16,908.00, unemployment rate of 5.4%, and seven health care facilities available to the community (Klohs, 1990). Ottawa county has an income per capita of $16,190.00, a 5% unemployment rate, equal industrial and commercial income base, and three smaller hospitals available for health care (Rizzio, 1990[b]). Allegan county is one of the poorer counties in southwest Michigan. It is financially dependent primarily on the harvest of fruit crops during spring, summer and fall. There is some industry and commercial income base also. The unemployment rate is 5.0%, with an income per capita of $13,861.00 (Rizzio, 1990[a]). In order to better understand what the tendencies of adolescents in initiation of prenatal care, this study will attempt to answer the following research questions:

1a) What percentage of pregnant adolescents in the sample receive adequate prenatal care for each county?

1b) What percentage of pregnant adolescents receive intermediate prenatal care for each county?

1c) What percentage of pregnant adolescents receive inadequate prenatal care for each county?

2) What percentage of pregnant adolescents in each of these three counties initiated prenatal care in each of the nine months of pregnancy?

3) What is the mean number of prenatal visits of the pregnant adolescents for each of the counties?

To answer these questions, a retrospective secondary analysis was conducted, using vital statistics data for 1990 obtained from the Michigan Department of Public Health (MDPH). The Adapted Health Belief Model was used as a framework for this study. Data was described using the maternal age at delivery, month of onset of prenatal care and total number of prenatal visits.

Summary

The first chapter contains an overview, the description of purpose and the importance of this investigation. In Chapter II, the conceptual framework which guided this investigation is presented. Chapter III contains a review of pertinent literature. A description of the methodology used to carry out this investigation is presented in Chapter IV. The analysis of the data is found in Chapter V. Chapter VI contains the summary, interpretation, conclusion and nursing implications of this investigation.

CHAPTER II

Conceptual Framework

Introduction

This chapter includes an introduction to the conceptual framework used in this study. Selected concepts from the Health Belief Model were used to guide this research study and the conceptual definitions under study are included in this chapter. The Health Belief Model was developed in the early 1950's by Rosenstock, Hochman and Kegeles (Becker & Marshall, 1974) with two different foci in their framework in reference to people's health seeking behavior. The first aspect of the framework explored people who were illness free and the different factors which influenced them to take actions to avoid illness. The second aspect of the framework explored people who failed to take such protective actions (Becker & Marshall, 1974). The Health Belief Model was adapted (Adapted Health Belief Model) and utilized in this study with the theory that modifying factors influence individual perceptions. The modifying factors and the individual perceptions subsequently impact the likelihood of action. The likelihood of action determines the adequacy of prenatal care (Edelman & Mandle, 1990).

Adequacy of prenatal care for this study was based on Kessner's Index (Table 1) modified by the Michigan Department of Public Health (MDPH). The Kessner Index groups prenatal care into three categories. Level I and Level II are the same in the Kessner and Modified Kessner Index. Level III in the Kessner Index includes no care and unknown amount of prenatal care categorizations in this grouping. The Modified Kessner Index includes unknown prenatal care categorization as a separate grouping.

Conceptual Definitions

Adequacy of Prenatal Care

Prenatal care and its adequacy are based on two major factors. It is based on the time of the first prenatal visit during the pregnancy and the total number of prenatal visits. Prenatal care has not been well defined conceptually in recent research literature.

Table 1

Kessner Index as Modified by the Michigan Department of Public Health

Prenatal Care Index	Month care began	Gestation (weeks at delivery)	# of visits
Level I Adequate	Within first three months	13 or less	>1
		14-17	>2
		18-21	>3
		22-25	>4
		26-29	>5
		30-31	>6
		32-33	>7
		34-35	>8
	Seventh month or later or no care	>36	>9
Level II Intermediate	All combinations other than specified for Levels I and III		
Level III Inadequate		14-21	0
		22-29	<1
		30-31	<2
		32-33	<3
		>34	<4
Unknown Amount of Prenatal Care			

Note. From "Prenatal care and pregnancy outcome in an HMO and general population: A multivariate cohort analysis" by J. Quick, M. Greenlick & K. Roghmann, 1981, American Journal of Public Health, 71 (4), p. 381-390.

One study in the literature by Scholl et al. (1987) attempted to define prenatal care by describing what prenatal care should include. In this prospective study of 757 women, the author defined prenatal care as adequate, intermediate, and inadequate. Adequate prenatal care was defined with the patient entering care in the first trimester and receiving the requisite number of visits for the gestational period. Inadequate care was defined as care that began in the last trimester or entry was in the the second trimester with fewer visits as stipulated by the researcher's guidelines. Intermediate care was considered all other combinations of care with initiation in the first or second trimester. It was found that those with adequate prenatal care had improved pregnancy outcomes.

Others (Gorsky & Colby, 1989) reviewed New Hampshire birth certificates to evaluate the cost effectiveness of prenatal care. The researchers used the adequate, intermediate, and inadequate prenatal care definitions cited in Scholl et al. (1987) to show that prenatal care reduced costs in medical care. This was done through decreasing preterm deliveries and through early detection of potentially complicating factors.

Alexander and Cornely (1987) applied the adequacy of prenatal care criteria and its relationship to pregnancy outcome. Their study focused on all white pregnant women seen in South and North Carolina from 1982-1987. Increased utilization of prenatal care was associated with an increase in the mean birth weight and gestational age of the infants.

For the purpose of this study, adequacy of prenatal care is defined quantitatively by the onset of prenatal care and the amount of subsequent prenatal visits (Quick et al., 1981). The onset of prenatal care is based on the weeks gestation that care began based on the last menstrual period. Classifications include adequate, intermediate and inadequate prenatal care. Adequate prenatal care is the most comprehensive, with visits beginning early in the first trimester, and subsequent visits continuing at regular interval throughout the pregnancy (Quick et al., 1981). Inadequate prenatal care has been defined by late entry in the last trimester and/or less than seven total visits throughout the

pregnancy (Quick et al., 1981). Intermediate care has been defined by the criteria that does not encompass either of the above classifications for prenatal care (Quick et al., 1981). However, complications occur and infants are delivered prematurely, despite prenatal care. The prenatal health services indexes take into consideration women who have infants delivered before term by having proportionally fewer visits.

Conceptual Framework

To guide this study, the Health Belief Model (HBM) was adapted (see Figure 1) and was used to explain entry for prenatal care and the amount of prenatal care obtained by the adolescent population through the concept, **likelihood of action.** The likelihood of action is based on (a) perceived benefits of decreasing maternal and fetal risks, and (b) barriers of demographic, structural and sociopsychological variables.

The adolescent's belief of decreasing maternal and fetal risks is based on the adolescent's perception of her pregnancy and her susceptibility to complications. Some adolescents may deny pregnancy, while others may not understand the ramifications of pregnancy. For those that do understand that pregnancy is a health condition, they may believe that because they are young and in good health, complications are not probable (Joyce, Diffenbacher, Green, & Sorokin, 1984). The end result is the likelihood of action impacting the amount of prenatal care that the adolescent subsequently receives.

The pregnant adolescent's barriers to obtaining prenatal care could be either perceived or real. Real barriers to obtaining prenatal care include the lack of insurance and/or money, difficulty accessing prenatal care due to lack of transportation or difficulty finding a physician to accept her as a patient (Joyce et al., 1984). The end result often is late entry into prenatal care, or entry into prenatal care and withdrawal before delivery. Perceived barriers include fear, knowledge deficit of pregnancy and the importance of prenatal care, depression or denial, and actual perception of how one is treated in the healthcare arena (Joyce et al., 1984). Once the adolescent female is pregnant, real and perceived barriers guide the adolescent into her decision making. The end result is the

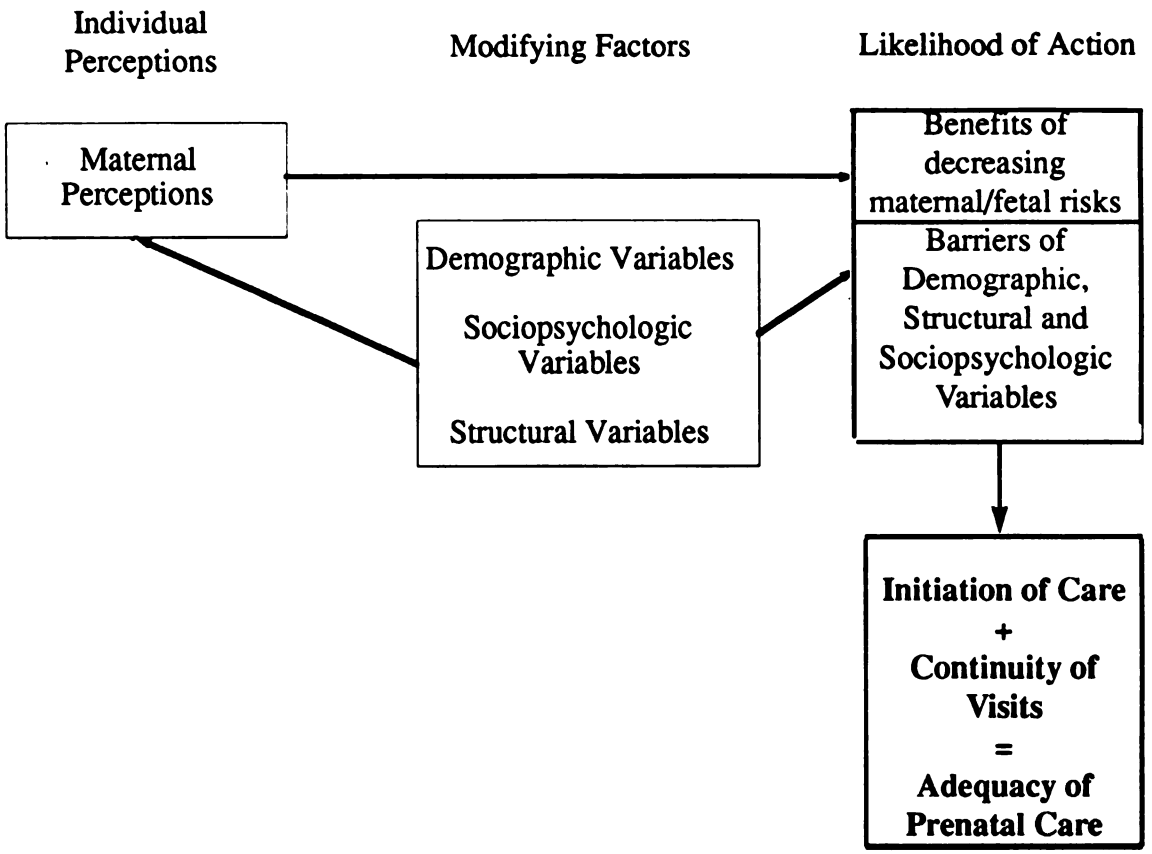

Figure 1. The Adapted Health Belief Model.

Note. From "The Health Belief Model and personal health behavior" (p. 7) by M. Becker and C. Marshall, 1974, Thorofare, N.J.: Charles B. Slack.

likelihood of action of the pregnant adolescent. More specifically, the perceived and real barriers that influence the likelihood of action are described as modifying factors, which also impact the adolescent in the seeking of prenatal care. These include demographic variables of age, sociopsychologic variables, such as prior pregnancies and their outcomes, and structural variables, such as accessibility to prenatal care in her community.

In summary, to assess the person's likelihood of taking preventative actions, the healthcare provider compares the picture of susceptibility of the adolescent with (a) perceived internal and external barriers, (b) individual perceptions of benefits, and (c) modifying factors. This can subsequently help explain the initiation and continuity of care among the general adolescent population. The action of the pregnant adolescent is either to seek out or to hold off the seeking of prenatal health care, which was the focus of this study.

The Health Belief Model does not specify which type of interventions most likely to improve an individual's likelihood of taking preventive health action. The development of the most appropriate professional interventions for a particular client must be negotiated between the client and health care provider (Edelman & Mandle, 1990).

For the purpose of this study, the final outcome (likelihood of action) within the Health Belief Model was the adequacy of prenatal care which includes the initiation and continuity of care. This study will not address barriers or benefits related to the likelihood of action. Subsequent research is needed to investigate the negotiation of appropriate interventions between the pregnant adolescent and the healthcare provider to better improve the **likelihood of action** of the adolescent.

Initiation and Participation in Prenatal Care

Initiation and participation in prenatal care is a complex activity for the adolescent. Use of the Health Belief Model provided an organized framework to explain the factors involved in the decision making of the pregnant adolescent in the pursuit of prenatal care (see Figure 1). The factors include barriers and benefits that the adolescent believes are relevant at the time, a part of the concept of **likelihood of action** within the HBM. Likelihood of action is dependent upon benefits and barriers. Although these factors are not part of this research, they will be discussed in this chapter, for further understanding of the concept of likelihood of action.

Benefits

Beliefs about the effect of preventive actions appear to be important determinants of health-protecting behavior. It is assumed that those that initiating and participating in prenatal care throughout pregnancy have decided that the benefits outweigh the internal or external barriers. A healthy pregnancy and healthy outcome may be the reason behind the initiation of care.

Of relevance to this study is initiation of action in relationship to adequacy of prenatal care. Prenatal care is most effective if initiated in the first trimester. The adolescent must first overcome the barriers and view prenatal care as a benefit to her health and to her baby's health. Some adolescents will become aware of prenatal care benefits without a health care provider becoming aggressive in the education of the adolescent. However, for those adolescents who do not initiate prenatal care in the first trimester, and continue throughout pregnancy with health care visits, the Clinical Nurse Specialist (CNS) has an important role.

Barriers

If an adolescent does end up with an unintended pregnancy, there may be fear of the unknown, and uncertainty of how to inform her parents of the pregnancy. The adolescent often continues to deny her pregnancy until it is too obvious to hide anymore,

and then access to the health care system begins, usually in the second trimester and after organogenesis (Carter & McGolderick, 1988).

The barriers to obtaining preventative care can take many forms and can be perceived or real. Cost, age, inconvenience, unpleasantness, or extent of life change required are some possible blocks to engaging in preventative behaviors. The adolescent, once pregnant, faces a multitude of barriers in the accessibility of prenatal care. The lack of money in general is one of the most serious barriers to adequate prenatal care. Other barriers include age, home life situation and lack of understanding of pregnancy and reproduction.

Clinical Nurse Specialist Role

The role of the Clinical Nurse Specialist (CNS) is multifocused, for both those adolescents who perceive prenatal care as a benefit and seek prenatal care, as well as those who feel that prenatal care has too many barriers, and do not become involved in the health care system. The CNS needs to include focusing on all aspects and concerns of the adolescent. The pregnant adolescent has as many, if not more, needs as the adult female, and may or may not be assertive enough to ask questions or express her needs. This includes the biological, psychological, social and spiritual needs that may be mentioned or not mentioned by the adolescent. It is the role of the CNS to encourage health care participation of the pregnant adolescent especially once the adolescent has initiated prenatal care. However, the CNS does not know what intervention is best needed for prenatal care for adolescents in a particular area without information about the extent of use of prenatal care by adolescents.

Summary

Prenatal care for pregnant teenagers is an important predictor of the outcome of pregnancy (Wells, McDiarmid, & Bayatpour, 1990). However, it is questionable if adolescents are receiving the prenatal care recommended by the health care community. The Health Belief Model can possibly predict prenatal attendance in pregnant

adolescents (Wells et al., 1990). This research study addressed only the likelihood of action in relationship to adequacy of prenatal care in an adolescent population.

In this chapter the conceptual definition of adequacy of prenatal care was provided. It was conceptualized in the Health Belief Model which provided the direction for this study. In Chapter III a review of literature relevant to the concepts under study are discussed.

Chapter III

Literature Review

Introduction

This chapter reviews the recent literature regarding adequacy of prenatal care, initiation of prenatal care and the number of prenatal care visits that pregnant women receive. The medical aspects of pregnancy are well documented (Gabbe et al., 1986). Pregnancy research has included preterm labor, complications of certain activities on pregnancy outcomes, mortality, and morbidity (Field, 1990; Hetchman, 1989; Sanderson, Placek, & Keppel, 1991). These studies primarily research the pregnant adult female and focus on the outcome of pregnancy. In recent years, research has been focusing on the adolescent as well as the adult pregnant female (Kurup, Viegas, Singh, & Ratnan, 1989; Scholl et al., 1991; Stevens-Simon, Roghmann, & McAnarney, 1991).

Initiation of Prenatal Care

Through a survey of national natality statistics of all pregnant adolescents in the United States, 50% have no care in the first trimester, 10% have no care during the first or second trimester, and 2.4% have no prenatal care whatsoever (Van Winter & Simmons, 1990). Van Winter and Simmons' (1990) conclusions were that the delay or the omission of care is due to a combination of fear of discovery, fear of breach of confidentiality, financial restrictions, and poor access to medical care.

A prospective study's reported results of a select group of women in New Jersey, found while assessing maternal weight gain, diet and infant birth weight, that the initiation of prenatal care when compared to national statistics of prenatal care was significantly later for adolescents than their adult counterparts (Scholl et al., 1991). Over 60% of the adolescent sample had prenatal care beginning after the first trimester and greater than 10% had prenatal care beginning into the third trimester. Of this sample, 75% of the adolescents were Medicaid supported. One of the possible explanations for the delay in medical care not discussed in this research is that many of these adolescents

may delay seeking prenatal care until after Medicaid has been initiated. Another possible reason for late prenatal care is the population studied may not understand the importance of prenatal care. There may also be difficulty in accessing available prenatal care.

Clinic environment can hinder or aid in the seeking of prenatal care in the adolescent. Cartoof, Klerman, and Zazueta (1991) concluded that the factors which limit adolescents' utilization of prenatal care include aspects of the clinic environment in which care is provided. In the Cartoof et al. (1991) study, clinic attractiveness assessed through surveys of 466 pregnant adolescents, was found to exert a stronger influence than ethnicity, age, source of payment for care, or the presence of a clinic in the neighborhood. Comfort and convenience of a prenatal clinic as well as how the adolescent was treated by the staff and health care practitioners appeared to positively affect early registration for prenatal care and keeping appointments (Cartoof et al., 1991).

Another study described a specific program that had a population that met specific inclusion criteria (Buescher, Meis, Ernest, Moore, Michielutte, & Sharp, 1988). This study had an adolescent population that was small. Another bias in this program is that the population was selected from women who have initiation at a certain point during their pregnancy. Subsequently, there is no comparison to the general population or adolescents who may not have access to such programs.

Adequacy of Prenatal Care

A review of maternal mortality statistics from 1979-1986 found that during this period, 5.5% of all women in the United States who had a live birth had inadequate prenatal care. In addition, 15% of all women who had a live birth and subsequently died had inadequate care (Atrash et al., 1990).

A review of national natality statistics by Young, McMahon, Bowman, and Thompson (1989) indicated that six percent of girls less than 16 years of age and three percent of girls 15 to 17 years of age received no prenatal care as compared to one

percent of their older counterparts. The perinatal outcome of adolescent mothers, 15 years of age or less continues to be poorer despite adequate prenatal care. There was no additional research to conclude why adolescents are not accessing prenatal care as well as their adult counterparts.

Many other researchers have applied the utilization of prenatal care and its relationship to pregnancy outcome (Alexander & Cornely, 1987; Scholl et al., 1987). Each of the studies divided prenatal adequacy into groups depending on the onset and/or the number of prenatal care visits received. Overall, the conclusions were that the early onset of prenatal care and the consistency in visits throughout pregnancy improved pregnancy outcome (Alexander & Cornely, 1987; Quick et al., 1981; Scholl et al., 1987).

Tyson, Guzick, Rosenfeld, Lasky, Gant, Jimminez, and Heartwell (1990) after reviewing prenatal care and pregnancy outcomes in a selected population concluded that pregnancy outcomes were improved only with the visits at 34-, 38-, and 42- weeks of gestation. However, only women who were not going to give the study a "preterm delivery bias" were included. Preterm delivery biases were those pregnant women with medical histories of prior preterm deliveries or miscarriages, for example. Excluding these preterm infants can justify such prenatal care conclusions, however, preterm delivery is the primary cause of infant morbidity and mortality, and prenatal care is the only means at this point that health care practitioners have to detect and work with preterm delivery and optimize the situation as it arises (Gabbe et al., 1986).

About half of all women who have not completed high school receive late or no prenatal care, compared to 10% of college educated mothers. Birth outcomes are poorest if a pregnant woman does not see a health professional until the last trimester of pregnancy (Moore, Origel, Key, & Resnik, 1986). In 1987, 37 million Americans lacked health insurance, and of these, more than 12 million were children under age 18 (USPHS, 1991[a]).

Prenatal Care

In a study by Wells et al. (1990), the Health Belief Model was used as a predictor for prenatal appointment keeping rates among pregnant teenagers. They combined the HBM with a tool called the Perinatal Health Belief Scales (PHBS), which measured the individual perceptions of the adolescent female. The study's conclusions were that the HBM effectively predicted prenatal appointment keeping rates among pregnant teenagers and that the psychosocial risk factors did not appear to be related to appointment keeping. Specifically, teenagers' appointment keeping rates vary systematically based on the extent of agreement or disagreement between the HBM and the PHBS (Wells et al., 1990). The sample included 63 adolescents and used only one site. Also, the majority of the patients were from a minority background and the health attitudes among majority teenagers was undersampled.

Findings in Malta and Singapore are similar to those in the United States (Kurup et al., 1989; Savana-Ventura & Grech, 1990). Kurup et al. (1989) found that in a study involving 255 unmarried women of whom 150 were adolescents, the adolescents over age 16 with an equivalent amount of prenatal care as the women over 19 had similar percentages of complications related to antepartum. However, teenage mothers were more likely to be primigravida and poor attenders of antenatal care. Between 18% and 32% of the adolescents in each of the three study groups had no antenatal care prior to entry into labor and delivery.

Kay, Share, Jones, Smith, Garcia, and Yeo (1991) compared a community based prenatal care program with comparable adolescents in a traditional prenatal care program at a university medical center. Despite the difference in the process of care that these adolescents received, the outcomes were similar. University run clinics tend to deal more with the undeserved and the population with a potential for higher risk during pregnancy and can skew the results by making it appear that the undeserved have equal access to health care. Extra precautions, such as laboratory tests or educational programs

may be included as regular prenatal care through these institutions, and detect earlier physical or educational problems, before these problems affect the fetus or the mother. These precautions may also bias the results of this study.

Stevens-Simon et al. (1991) concluded in their study about early vaginal bleeding, late prenatal care and misdating in adolescent pregnancy, that a history of vaginal bleeding in the first trimester is unclear but may reflect age-related differences in the hormonal milieu early in pregnancy. During adolescence the menstrual pattern is less uniform than it is later in life (Treloar et al., 1970). Therefore, adolescents may mistake early first-trimester bleeding for menstrual bleeding more often than do adults, thus delaying recognition of pregnancy and their entry into prenatal (Stevens-Simon et al., 1991). The sample in this study was described as biased, however, the actual number of the subjects was not given. The population consisted of primarily black, primiparous, and unmarried poor women. No consideration was taken as to the possibility of poorer health among this population, nor the lack of awareness of their bodily functions.

A study in New York, however, found that a comprehensive program, despite the late entry of many of the adolescents into prenatal care, affected costs and averted complications (Leppert & Namerow, 1985). Of the 395 women enrolled into the program, 10.3 % of the entire study group ended their pregnancies with infants weighing 2500 grams or less. There were 51 women during the period of this study that presented at delivery with two or fewer visits during the pregnancy. Thirty five percent of these women who had two or fewer prenatal care visits had babies that weighed 2500 grams or less. The conclusions to this study (Leppert & Namerow, 1985) were that the additional costs of providing comprehensive care are more than recovered with the costs saved by reducing low birth weight babies. In addition, despite late entry into prenatal care, there were maternal and fetal benefits. This study did not control for such variables as personality characteristics of the teenagers, the social support systems available to them, or other environmental circumstances. There was also no discussion as to racial, age or

socioeconomic status of any of the adolescents.

The available research consisted primarily of studies focusing on subjects that were being cared for in a specific healthcare facility. There is very little literature dealing with the general population. Most studies consist of populations of inner city poor women. Sample biases include the type of health insurance, place of residence, societal situations and prenatal history to name a few. However, those studies that were available, showed that comprehensive care, even if initiated in the second trimester, is beneficial, albeit not as beneficial as initiating prenatal care in the first trimester (Merkatz, Thompson, Mullen, & Goldenberg, 1990; Quick et al., 1981; Sokol, Woolf, Rosen, & Werngarden, 1980). Future research needs to focus more on the pregnant adolescent female and her health care seeking patterns in both a selected and experimental setting.

Summary

Pregnancy is a normal reproductive function. It is not, however, a venture without risk or complication. Through the advances of nursing and medicine, it is not as great a risk as it once was. Prenatal care has increased the early detection of many of the problems of pregnancy, decreasing many of the detrimental effects of pregnancy related complications.

The concept of prenatal care is known to the general public. There is no one specific reason that prenatal care, when available, is not accessed. There is a trend for increased complications in those females who choose not to enter the health care system for prenatal health care. This is especially evident among adolescents who tend to have less prenatal care and more complications. There is very little current research as to when adolescents initiate prenatal care and once prenatal care is initiated, to what extent adolescents continue with prenatal care.

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Sample biases include the type of health insurance, place of residence, societal situations and prenatal history to name a few. However, those studies that were available, showed that comprehensive care even if it is initiated in the second trimester, is beneficial, even though it is not as beneficial as initiating prenatal care in the first trimester (Merkatz et al., 1990; Quick et al., 1981; Sokol et al., 1980). Future research needs to focus more on the pregnant adolescent female and her health care seeking patterns in both a selected and experimental setting.

CHAPTER IV

Methods

Introduction

This chapter addresses the research methods of the study. The steps, procedures and strategies for gathering and analyzing the data are described. Operational definitions used as a basis for this research include initiation of prenatal care, number of visits, and adequacy of prenatal care. The sample that was studied as well as the data collection procedure are also discussed.

Design

In this study, a description of the relationships between age of adolescents and adequacy of prenatal care in a tri-county area through a secondary analysis of vital statistics information was done.

Operational Definitions

The Michigan Department of Public Health (MDPH) codes adequacy of prenatal care into three categories based upon the month prenatal care began, length of gestation and the number of visits currently referred to as the Modified Kessner Index (Kessner, Singer, Kalk, & Schlesinger, 1973; Quick et al., 1981). Initially, the index was developed to study infant outcomes. However, agencies have found it applicable in categorizing prenatal care. The MDPH is one such agency.

Prenatal Care Criteria

Initiation of prenatal care. This is the trimester that the adolescent first presents to the health care provider for prenatal care as documented on the certificate of live birth, in the section titled, "month of pregnancy prenatal care began."

Number of prenatal care visits. This is the total number of visits to the health care provider that the adolescent attended throughout her pregnancy, as documented on the certificate of live birth, in the section titled, "total prenatal visits."

Adequacy of prenatal care. This consists of three levels. The Kessner Prenatal Care Index includes taking into consideration the month prenatal care began and the number of prenatal visits made by the pregnant female during the course of her pregnancy as well as gestational age in weeks at delivery. Adequacy is operationally defined by the MDPH modified Kessner Index which is calculated as follows:

1. Adequate prenatal care is defined as care which was begun within the first trimester and which includes an average of at least one or two additional prenatal visits per month of gestation depending on the length of gestation. The total number of visits would total between 10 and 14 visits for a gestation greater than 37 weeks (Michigan Department of Public Health, 1990).

2. Intermediate prenatal care is defined as care which was begun either during the first or second trimester of the pregnancy but with correspondingly fewer visits occurring than would be appropriate for the length of gestation at the time of delivery (Michigan Department of Public Health, 1990).

3. Inadequate prenatal care is defined as no care being received or care begun during the first trimester but with fewer than five total visits made throughout the course of pregnancy (Michigan Department of Public Health, 1990).

4. Unknown is defined as the amount of prenatal care is not known (Michigan Department of Public Health, 1990).

Adolescence For the purpose of this study adolescence is defined as a female less than the age of 20. There is no lower limit to the age group since adolescence is dependent on the adolescent proceeding developmentally through puberty, rather than at a specific age. For the purpose of this study, adolescents are divided into two categories. The first category consists of adolescents ages 14 years and younger. The second category consists of adolescents ages 15 years and older. These age divisions are based on the divisions that the MDPH utilized.

Sample

The sample was the 1583 vital statistic records for births to adolescent females, 19 years of age and younger, in Kent, Allegan and Ottawa Counties in Michigan in 1990. The second largest metropolitan area in Michigan is in one of these counties. There were approximately 19,000 adolescent pregnancies in the state of Michigan in 1990; 1583 (approximately 8%) of these pregnancies were in the tri-county area of Allegan, Ottawa, and Kent Counties.

Data Collection Procedure

Primary data were collected by the Michigan Department of Public Health from the birth certificate data. A letter was sent to the Michigan Department of Public Health (Appendix A), requesting access to the data related to adolescent pregnancy. Information specifically requested was the age of each pregnant adolescent, county of birth, gestational age of the infant, the month that prenatal care began, and the total number of prenatal visits made. Data was provided by the Michigan Department of Public Health (Appendix B).

Data Analysis

Descriptive data from birth certificate records from 1990 were retrieved from the computer bank at the Michigan Department of Public Health. This included: gestational age, number of visits, onset of prenatal care, and the county of delivery. Each of these items was categorized by two separate age groupings. Primary data analysis was done by the MDPH in an aggregate form. The age groupings included adolescent females ages 14 years and younger, and adolescent females ages 15 years and older.

Three questions have been posed in this study. The MDPH modified Kessner Index was used to answer the first question. The frequency and percentage of adolescents in each adequacy category by age and county was also calculated, using cross tabulation. The second question relates to the total number of prenatal visits. The

mean number of prenatal care visits for the pregnant adolescent by age and county was calculated. The final question relates to the frequency and percentage for the month that prenatal care began. A cross tabulation was done using the variables of the month prenatal care began by age and county.

Protecting Human Subjects

This study involved data that the MDPH had attained on human subjects. This researcher had no contact with the subjects. There was no request for personal or identifying data. Thus, there was virtually no possibility of breach of confidentially and the rights of privacy of the pregnant adolescents were protected. Approval from University Committee for Research Involving Human Subjects was received on March 6, 1992 (see Appendix C).

Assumptions and Limitations

For the purpose of this research, the following assumptions were made:

1. Prenatal care is available to the pregnant adolescent, therefore, all pregnant adolescents will obtain prenatal care.

2. Pregnant adolescent females receive prenatal care that is comparable to that of pregnant adult females, therefore, it is that the variation in pregnancy outcomes is not due to a lesser standard of prenatal care for pregnant adolescent females.

3. The birth certificate from which the information is obtained was filled out accurately according to state regulations by the health care provider and/or other appropriate personnel. It is assumed that the information given is correct.

Limitations to this study are the inability to draw causal conclusions from the results, however, these findings can be used for practical purposes and provide a direction for future research. Other limitations identified in this study include:

1. The study is retrospective in design, therefore, the information is limited to data that was obtained through the Michigan Department of Public Health.

2. The sample is limited to the Counties of Kent, Ottawa, and Allegan. Therefore,

the results of this study may not be applicable to other counties.

3. Other contributing factors towards maternal and fetal health were not be taken into consideration, therefore, prenatal visits may be altered based on early complications during pregnancy, or early delivery.

Summary

This chapter reviewed the research methods of the study. The steps, procedures, and strategies for gathering and analyzing the data have been reviewed. Operational definitions included in this research are prenatal care, number of visits a adequacy of prenatal care. Limitations and assumptions were also included in this chapter. The MDPH agreed to cooperate in the data collection and analysis. Chapter V describes the results.

CHAPTER V

Results

Introduction

In this chapter demographic data of the study and descriptive statistics relevant to the research questions are presented. The age and race of the population are discussed. The results of the research questions are given. Additional observations are made.

Overview of the Sample

The data were obtained from the 1990 birth records obtained from the Michigan Department of Public Health (MDPH). There were a total of 1583 births reported in the counties of Allegan, Ottawa, and Kent for adolescents ages 12 to 19 years of age. This was 11% of the total number of births ($\underline{N}$ = 14,418) in the tri-county area. In Allegan County, 12% ($\underline{n}$ = 178) of all births ($\underline{n}$ = 1475) were to adolescents between ages 14 and 19 years. Ottawa County had 8% ($\underline{n}$ = 245) of the total pregnant population being between the ages of 12 and 19. Whereas in Kent County, 12% of all births ($\underline{n}$ = 9780) were to adolescents between the ages of 12 to 19 years (Figure 2).

In the United States, one out of every 10 adolescents becomes pregnant every year (Turnbull, 1991). The tri-county area adolescent birth rate of the study is similar to the settings that exists between the three counties. Allegan County is mostly rural (Rizzio, 1990[a]), whereas Kent County is predominantly urban (Klohs, 1990).

As seen in Table 2, adolescents giving birth in Allegan, Ottawa and Kent Counties ranged in age from 12 to 19 years. The mean age and standard deviation were also similar between counties. The mean age for all adolescents giving birth in these three counties combined was 17.8 years (Table 2). Nineteen-year old females made up 36% ($\underline{n}$ = 577) of the adolescent population giving birth in these three counties. Slightly more than one quarter of the adolescents who gave birth were 18 year olds ($\underline{n}$ = 443). One third of the remaining adolescents who gave birth in the tri-county area occurred among adolescents 17 years or younger. Adolescents 14 years or younger consisted of less than

3% (n = 36) of the total adolescent population giving birth in the tri-county area (Figures 2 and 3).

Kent County had a higher number and percent of younger pregnant adolescents than Allegan and Ottawa Counties combined. Kent County also had the only pregnant adolescents under age 14.

Research Questions

The research questions focused on varying aspects of prenatal care. Because there were so few adolescents 14 years and younger, the results will be described dividing the adolescents into two categories: those 14 years and younger, and those 15 years to 19 years.

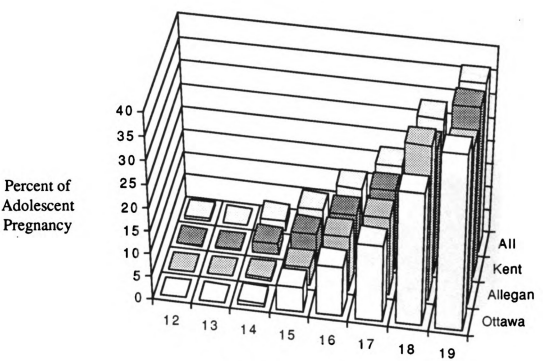

Figure 2. Percent of adolescent pregnant females by age of pregnancy in Ottawa, Allegan, and Kent Counties, Michigan in 1990.

Table 2

Age of the Pregnant Adolescent Population in Ottawa, Allegan and Kent Counties, Michigan in 1990

	County			
	Ottawa	Allegan	Kent	All
n[a]	247	178	1158	1583
M[b]	17.80	17.79	17.69	17.77
SD[c]	1.2	1.2	1.4	1.9
Range	14 - 19	14 - 19	12 - 19	12 - 19

[a]Total number of pregnant adolescents in the described area. [b]Mean age of pregnant adolescents in the described area. [c]Standard deviation of the age of adolescents in the described area.

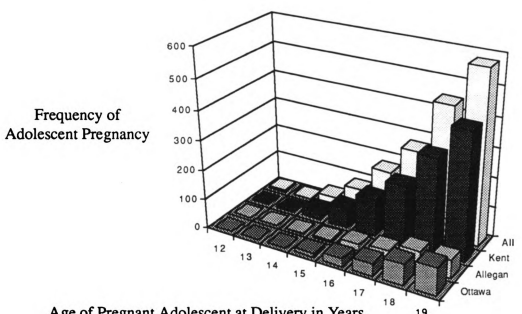

Figure 3. Frequency of adolescent pregnant females by age of pregnancy in Ottawa, Allegan and Kent Counties, Michigan in 1990.

Research Question 1a What percentage of adolescents in the sample receive adequate prenatal care for each county?

Adolescents who were between the ages of 12 and 14 (n = 36) in the tri-county area had adequate prenatal care 22% of the time (Figure 4). This reflects primarily Kent County, since, of the two adolescents in this age group in Ottawa County, none received adequate prenatal care. For the purpose of this study, adolescents ages 12 to 14 years of age will be discussed as a group, not according to individual counties, due to the small number in the sample. There was only one adolescent in Allegan County who was in this age category, and she received adequate prenatal care. Kent County had a total of 33 adolescents in this age grouping, and 21% (n = 7) received adequate prenatal care. The other two adolescents between the ages of 12 and 14 were in Ottawa County, and these two adolescents received intermediate care.

Slightly less than half of the adolescents (46.9%), 15-19 years of age received adequate prenatal care in the tri-county area. As can be seen from Figure 5, Allegan and

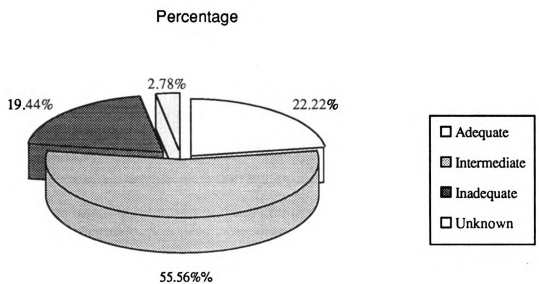

Figure 4. Adequacy of prenatal care received by adolescents ages 12-14 in Ottawa, Allegan and Kent Counties, Michigan in 1990.

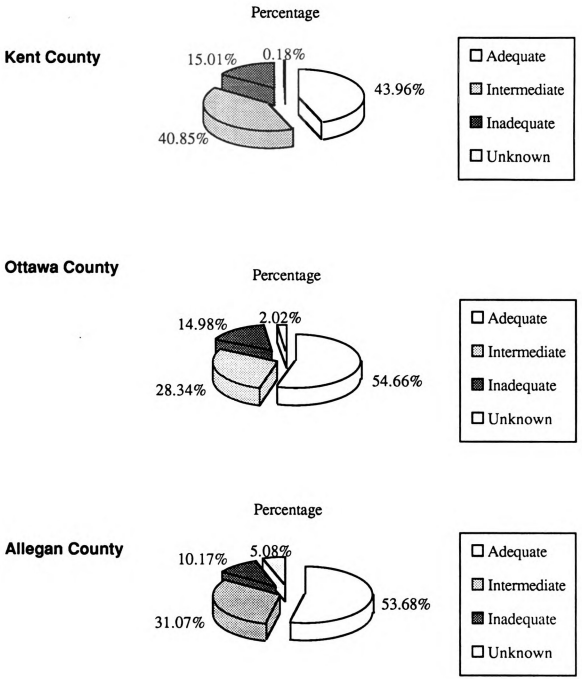

Figure 5. Adequacy of prenatal care received by adolescents ages 15-19 in Ottawa, Allegan and Kent Counties, Michigan in 1990.

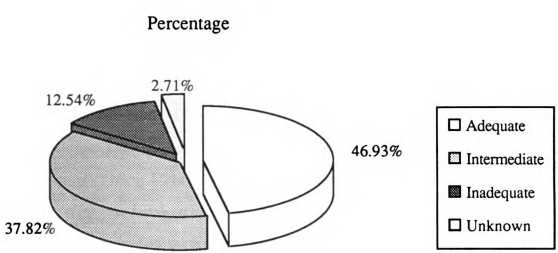

Figure 6. Adequacy of prenatal care received for adolescents ages 15-19 in combined Ottawa, Allegan and Kent Counties, Michigan in 1990.

Ottawa were very similar with 55% (n = 95) and 54% (n = 135) of adolescents receiving adequate prenatal care respectively. Kent county, however, has only 44% (n = 490) receiving adequate care.

Research Question 1b What percentage of adolescents receive intermediate prenatal care for each county?

Adolescents between the ages of 12 and 14 in the tri-county area received intermediate prenatal care in almost 56% of the cases (Figure 4). Again, this represents primarily Kent County. Ottawa County had only two adolescents giving birth who were between the ages of 12 and 14 and both of these adolescents received intermediate prenatal care. Kent County had 18 adolescents (55%) between the ages of 12 and 14 who received intermediate prenatal care.

In the tri-county area 37.8% (n = 585) of the 15-19 year old adolescents received intermediate care (Figure 6). Ottawa County, with 28% (n = 70), had the smallest percentage of older adolescents receiving intermediate prenatal care. Allegan County's percentage of 31% (n = 55) was slightly higher, while Kent County had 41% (n = 460) having received intermediate care (Figure 5).

Research Question 1c What percentage of adolescents receive inadequate prenatal care for each county?

Overall, 19.4% (n = 6) of younger adolescents received inadequate prenatal care, and these were all in Kent County (Figure 4). About 13% (n = 236) of older adolescents received inadequate prenatal care in the tri-county area (Figure 6). Kent County had the largest percentage (15%, n = 114) of 15-19 year old adolescents receiving inadequate prenatal care. This was followed by Ottawa County with 14.9% (n = 27) of older adolescents receiving inadequate prenatal care. Allegan County had 10.2% (n = 13) of older adolescents receiving inadequate prenatal care (Figure 5).

In summary, under one half of the older adolescents in the tri-county area received adequate prenatal care, and slightly over one third of these adolescents received intermediate prenatal care (Figure 6). Younger adolescents received adequate prenatal care in slightly less than one-quarter (22%) of the sample reflecting primarily Kent County. Younger adolescents in the sample received intermediate prenatal care 56% of the time. Inadequate prenatal care exists for 19.4% of younger adolescents and for 12.5% of older adolescents.

Research Question 2 What percentage of pregnant adolescents in each of these three counties initiated prenatal care in each of the nine months of pregnancy?

Pregnant adolescents in the tri-county area initiated prenatal care as early as the first month of pregnancy and as late as the last month of pregnancy with a mean range of 3 to 4.9 months (See Table 3 and 4). Almost 10% (n = 6) had an unknown amount of prenatal care. Only a few (n = 6) received no prenatal care at all.

Adolescents: Ages 12-14. Younger adolescents, ages 12-14 years, initiated prenatal care late in the first trimester or early in the second trimester. Slightly less than one quarter (n = 8) of the 36 adolescents initiated prenatal care in the second or third month of pregnancy, and slightly less than one third (n = 11) of the younger adolescents initiated prenatal care in the fourth month of pregnancy (Figure 7). There was then a

Table 3

Month of Initiation of Prenatal Care by 12-14 Year Old Adolescents in Ottawa, Allegan and Kent Counties, Michigan in 1990

	County			
	Ottawa	Allegan	Kent	All
n [a]	2	1	33.0	36.0
M [b]	4	3	4.6	4.9
Median [c]	4	3	4.0	4.0
SD [d]	0	0	2.7	3.2

[a]Total number of pregnant adolescents. [b]Mean month of initiation of prenatal care. [c]Median month of initiation of prenatal care. [d]Standard deviation of the month of initiation of prenatal care.

Table 4

Month of Initiation of Prenatal Care by 15-19 Year Old Adolescents in Ottawa, Allegan and Kent Counties, Michigan in 1990

	County			
	Ottawa	Allegan	Kent	All
n [a]	245.0	177.0	1125.0	1547.0
M [b]	3.3	3.6	3.1	3.5
Median [c]	3.0	3.0	3.0	3.0
SD [d]	2.1	2.6	3.1	2.9

[a]Total number of pregnant adolescents. [b]Mean month of initiation of prenatal care. [c]Median month of initiation of prenatal care. [d]Standard deviation of the month of initiation of prenatal care.

gradual decline in number of adolescents initiating prenatal care in the latter months of pregnancy. According to the MDPH data, one younger adolescent received no prenatal care (3%). Younger adolescents had prenatal care initiation ranging from the second month of pregnancy to no prenatal care The mean month of initiation of prenatal care was 4.9. The median month of initiation for younger adolescents was the 4th month (Table 3).

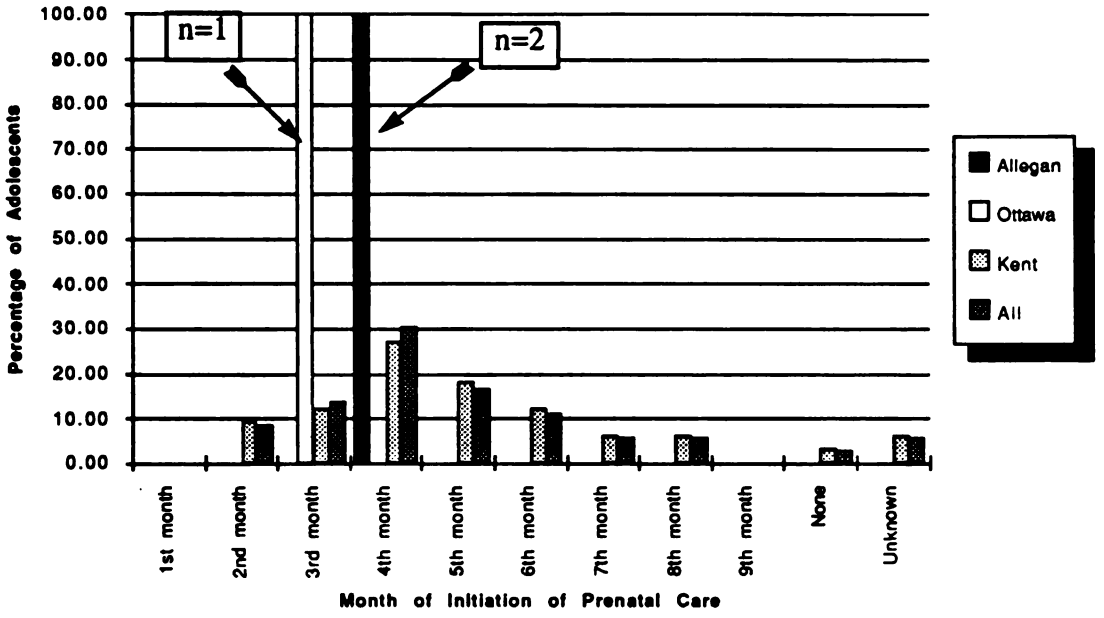

Figure 7. Month of initiation of prenatal care by 12-14 year old adolescents in Ottawa, Allegan and Kent Counties, Michigan in 1990.

Adolescents: Ages 15-19. Older adolescents, ages 15-19, initiated prenatal care more often in early pregnancy, than the middle or later pregnancy. The mean month of initiation was 3.5 for the older adolescents in the combined tri-county area (Table 3). Ottawa and Kent Counties had similar months of initiation of 3.3 and 3.1, respectively. Allegan county had a slightly later time of initiation of 3.6. The pattern of initiation does, however, vary slightly among the three counties as can be seen in Figure 8. Fifty-two percent of the older adolescents in the tri-county (n = 818) area received prenatal care in early pregnancy. Ottawa County had more older adolescents receiving prenatal care in the first three months of pregnancy (n = 99, 61%). Allegan had a slightly smaller percentage initiating prenatal care in early pregnancy (n = 108, 57%), and Kent County had 50% (n = 561) of older adolescents initiate prenatal care in early pregnancy.

The first month of pregnancy had approximately 5% of each of the counties' older

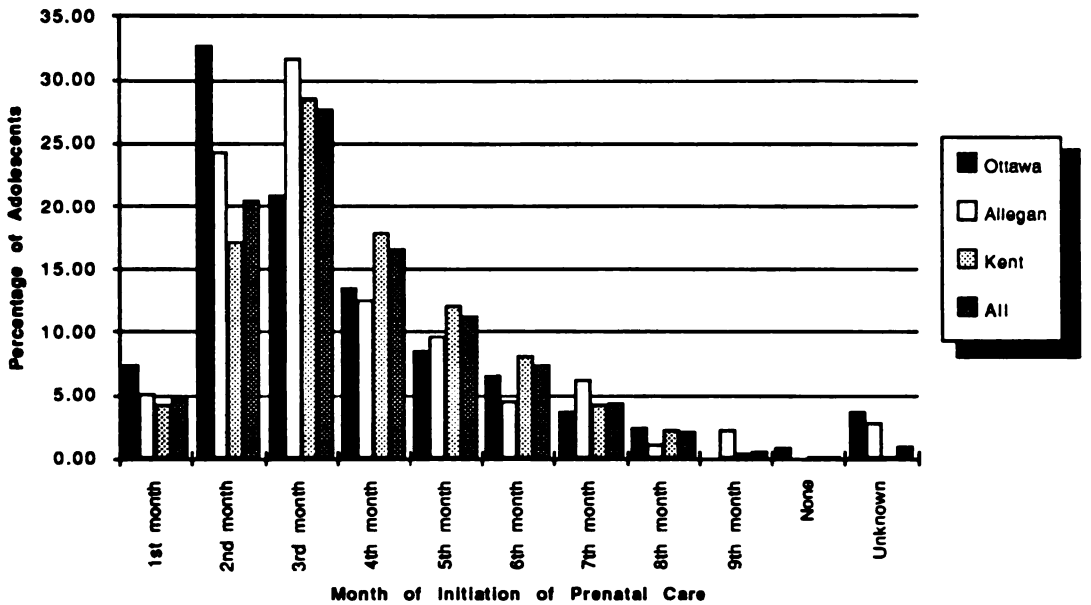

Figure 8. Month of initiation of prenatal care by 15 - 19 year old adolescents in Ottawa, Allegan and Kent Counties, Michigan in 1990.

adolescents receiving prenatal care. In Ottawa County, almost one third of the adolescents sought prenatal care in the second month of pregnancy. Slightly less than one third of the Allegan and Kent County adolescents subsequently presented themselves in the third month of the pregnancy (Figure 8).

A smaller number of adolescents (36%) initiated prenatal care in the middle of their pregnancy than those who initiated prenatal care in early pregnancy. Kent County had a larger percentage of adolescents initiating prenatal care at this time (38%) than Allegan (27%) and Ottawa County (29%). Over 18% of the Kent County adolescents initiated prenatal care in the fourth month. In the fifth month of pregnancy, all three counties had approximately one-tenth of their sample initiate prenatal care.

Initiation of prenatal care in the late pregnancy occurred with approximately 7% (n = 109) of the adolescents in the tri-county area. A considerable higher percentage of adolescents in Allegan County (n = 17, 9%) initiated prenatal care in the third trimester.

Five percent of the adolescents initiated prenatal care in the seventh month of pregnancy. Again the decline in initiating prenatal care continued during the eighth and ninth months to 1%-2% of the sample. A small percentage of the population received no prenatal care.

Despite the presence of prenatal care in all three counties, there is still approximately 1% of the older adolescent population that is receiving no prenatal care throughout the pregnancy.

Research Question 3 What is the mean number of prenatal visits made by the adolescents within each county?

The mean number of prenatal care visits was not given as a single number, but as a grouping. In the data presentation, it will be described as groupings that the MDPH utilized. The range of prenatal care visits for the adolescent population was categorized into seven groupings by the MDPH. The groupings for the tri-county area ranged from no prenatal visits to greater than 20 visits and had a bell shaped distribution of this data (Table 5 and 6).

Adolescents: Ages 12-14. Forty-seven percent of the younger adolescents in the tri-county area made 10-14 prenatal care visits during their pregnancy. This is approximately the expected number of prenatal care visits received during a normal full term pregnancy. Comparing the average range of prenatal visits in each county, Ottawa County had all of their population receive 10-14 prenatal visits. The younger adolescent in Allegan County received 5-9 prenatal care visits. Because of the small sizes, two and one respectively, conclusions should again be guarded (Table 5).

Kent County had a larger sample of adolescents in the 12 - 14 year old category ($n = 33$). The range of visits by the adolescents varied in Kent County, but most adolescents were either in 5-9 or 10-14 visit intervals (Table 5).

Adolescents: Ages 15-19. Over one-half of the older adolescent population (54%) attended 10-14 prenatal care visits throughout pregnancy in the tri-county area. Kent and Allegan had similar percentages in that grouping, while Ottawa had more (60%) of their sample in this interval (Table 6).

Table 5

Percentage of Prenatal Care Visits by 12-14 year old Adolescents in Ottawa, Allegan and Kent Counties, Michigan in 1990

	County							
	Ottawa		Allegan		Kent		All	
n[a]	2		1		33		36	
# if visits[b]	f[c]	%[d]	f	%	f	%	f	%
None	0	0	0	0	1	3.03	1	2.78
1-4	0	0	0	0	1	3.03	1	2.78
5-9	0	0	1	100	13	39.40	14	38.38
10-14	2	100	0	0	15	45.45	17	47.22
15-19	0	0	0	0	1	3.03	1	2.78
20+	0	0	0	0	0	0.00	0	0.00
Unknown[e]	0	0	0	0	2	6.06	2	5.56

[a]Total number pregnant adolescents in described area. [b]Total number of prenatal care visits documented on birth certificate that adolescents received during pregnancy. [c]Number of adolescents in each county who received prenatal care based on number of prenatal care visits received. [d]Percentage of adolescents in each county who received prenatal care based on total number of visits received. [e]The amount of prenatal care received by the adolescents was not known.

Table 6

Percentage of Prenatal Care Visits by 15-19 year old Adolescents in Ottawa, Allegan, and Kent Counties, Michigan in 1990

	County							
	Ottawa		Allegan		Kent		All	
n[a]	245		177		1125		1547	
# of Visits[b]	f[c]	%[d]	f	%	f	%	f	%
None	2	0.82	0	0.00	11	0.98	13	0.84
1-4	9	3.67	10	5.65	53	4.71	72	4.65
5-9	59	24.08	55	31.07	345	30.67	459	29.67
10-14	148	60.41	95	53.68	598	53.16	841	54.36
15-19	14	5.71	11	6.21	68	6.04	93	6.01
20+	5	2.04	2	1.13	9	0.80	16	1.03
Unknown[e]	8	3.27	4	2.26	41	3.64	53	3.43

[a]Total number pregnant adolescents in described area. [b]Total number of prenatal care visits documented on birth certificate that adolescents received during pregnancy. [c]Number of adolescents in each county who received prenatal care based on number of prenatal care visits received. [d]Percentage of adolescents in each county who received prenatal care based on total number of visits received. [e]The amount of prenatal care received by the adolescents was not known.

In the second most frequent interval, (5-9 visits throughout pregnancy) almost one third of the adolescents in Allegan and Kent Counties subsequently received prenatal care. Fewer of the Ottawa County adolescents (24%) received prenatal care in that category. Approximately 7% of the tri-county population had greater than 15 prenatal care visits during antepartum. This was relatively similar across the three counties.

Although 96% of the adolescents in the tri-county area were able to access documentable prenatal care, 4% had either no prenatal care or an unknown quantity of prenatal care. Of this 4%, 3% consisted of adolescents who received a questionable or unknown amount of prenatal care, while the other 1% received no prenatal care.

Summary

The data for this research consisted of a review of 1990 birth certificate records from the MDPH data files. Included were the ages of adolescents, amount of prenatal care received and month of initiation of prenatal care.

Approximately half of all adolescents received prenatal care in the first trimester. This is consistent in all three counties. Younger adolescents had prenatal care initiation ranging from the second month of pregnancy to no prenatal care. Older adolescents had prenatal care that ranged from the first month of pregnancy to no prenatal care. The median month of initiation of prenatal care for the tri-county area is the third month.

Adequacy of prenatal care is received by slightly less than half of the population that includes adolescents ages 15-19. Approximately one-third of the adolescents received intermediate prenatal care. As the adequacy of prenatal care decreased, the percentage of older adolescents having received that category of care also decreased.

Younger adolescents received more intermediate prenatal care, but three-quarters of them received less than adequate prenatal care and almost one-quarter of these adolescents received inadequate prenatal care. There was a small population of younger adolescents ($n = 36$), which was more representative of Kent County ($n = 33$) than Ottawa ($n = 2$) or Allegan Counties ($n = 1$). In Chapter VI interpretation of the results and recommendations are presented. Implications for advanced nursing practice and research are also discussed.

CHAPTER VI

Recommendations, Interpretation, and Implications

Overview

The interpretation of the research findings in terms of the conceptual framework, literature, and methods are presented. Also included is a discussion of the implications for advanced nursing practice and primary care, and the limitations of the study and recommendations for future research.

Interpretations of Findings

The research was guided by the Adapted Health Belief Model. Within the Adapted Health Belief Model, the initiation of prenatal care is identified as the likelihood of action. The likelihood of action is dependent upon the modifying factors and individual perceptions of benefits and barriers of the pregnant adolescent. The end result of the adolescent's action included how the initiation of prenatal care and the continuity of care received resulted in the adequacy of prenatal care.

In this study, data were collected on initiation of prenatal care, number of prenatal visits and adequacy of prenatal care to determine prenatal care utilization by pregnant adolescents in a tri- county area of Michigan. This section includes interpretation of the demographic information and findings.

This study was designed to include pregnant adolescents, from Ottawa, Allegan, and Kent Counties, ages 19 and under, who gave birth in 1990. The Michigan Department of Public Health provided data which divided adolescents into two age categories: (a) 12-14 years, and (b) 15-19 years. For the purpose of this study, interpretation of the findings have been made based on these two age groupings.

The mean age of menarche in the United States is 12.8 years (+/ 2.5 S.D.), with a normal range of 10.3-15.3 years (Connell, 1992). Studies have shown that one fifth of the 13-14 year olds and more than half of the 15-19 year olds have begun to have sexual intercourse (Connell, 1992). Of the total population in this study, 2% (n = 36) were

adolescents between the ages of 12 and 14. There are two major factors that could contribute to this small number. The first is the physiological development of the adolescent, and the other is the psychosocial factors that influence adolescents at this age.

The mean age of the study sample was 17.8 years. The mean age of pregnancy in the United States for adolescents age 19 and under is 16.2 years of age (Connell, 1992). The tri-county area has a very strong church basis (Rizzio, 1990[a]; Rizzio, 1990[b]). The mean age of onset of pregnancy of this study may be higher because of the strong religious attitudes towards premarital sex, family stability (Hansell, 1991), and adolescent pregnancy or other social reasons such as availability of birth control and sexual education in the school system, not addressed in this study (Wells et al., 1990).

Development of independence and self control is a major task among the adolescent population, and this may be one reason pregnancy may occur among the adolescent population. The adolescent utilizes decision making to promote the feelings of independence and control. In terms of adolescent pregnancy, it should be assumed that adolescents do not choose to become pregnant, rather they choose to become sexually active, many of whom do not take precautionary measures to prevent pregnancy (Chandler, Boyes, & Ball, 1990; Offer, Ostrov, Howard, & Atkinson 1990).

Adolescents may feel that they are immune from pregnancy and do not have the maturity to foresee the potential consequences of their actions (Offer et al., 1990). Relating to the Adapted Health Belief Model, the adolescent female may, or may not, act on her knowledge based on her individual perceptions of susceptibility. This may be a contributing factor to the adolescent pregnancy rate.

Because the adolescent population includes 18 and 19 year old females, these females are considered legal adults and may choose to be married. Some of the population in this tri-county area may include young married adults who choose to have children after marriage. This could contribute to higher statistics in the older adolescent

category, however the impact of marriage on the adequacy of prenatal care was not researched in this study.

Of the total population, 72.7% (n = 1125) were adolescents in Kent County. Possible demographic data contributing to the larger percentage of adolescents being in Kent County are multiple: (a) there are proportionally more adolescents in Kent County, when compared to Ottawa and Allegan counties; and (b) there is a large inner city population in Kent County, whereas, Ottawa and Allegan counties have a larger rural population. Adolescents in Allegan and Ottawa Counties, therefore, may have farm responsibilities, where as the adolescents in Kent County may have fewer responsibilities in the home to keep them occupied. Another area where Kent County may differ from Allegan and Ottawa counties is the possibility that adolescent pregnancy is a family trend occurring generation to generation (Hansell, 1991).

Initiation of Prenatal Care Visits

Nationally it has been found that 70% of adolescents receive no prenatal care during the first trimester, and 25% have prenatal care at the end of their pregnancies if any care at all (Connell, 1992). When looking at older adolescents in this population, 15-19 year old adolescents had almost twice the national average received prenatal care in the first trimester. Over one-half (52%) of the older adolescents (n = 818) sought prenatal care during the first trimester, and over one third (35%) sought prenatal care in the second trimester (n = 548).

The reasons for a larger percentage of the sample receiving adequate prenatal care have not been researched. Speculation includes ability to access earlier prenatal care when compared to other communities. Another possibility is, despite the community being conservative, some of the adolescents may be obtaining abortions, thereby altering the percentage of adolescents initiating prenatal care at different intervals during pregnancy.

Comparing the younger adolescent (n = 36) population, 12 to 14 years of age, with the national average for adolescents ages 12 to 14, only 22% of the younger adolescents received prenatal care in the first three months of pregnancy, (n = 8) and 59% (n = 21) received prenatal care in the second three months of pregnancy. The mean month of initiation of prenatal care utilization for adolescents less than age 14 was 4.9 with a median month of 4.0. This data is similar to the national statistics in reference to prenatal care (Connell, 1992).

The 15-19 year old sample had a mean initiation of 3.5, similar to the national prenatal care patterns for older adolescents (Connell, 1992). Older adolescents had a median month of initiation of prenatal care of 3 and a mean month of initiation of prenatal care of the third month.

The older adolescents in the tri-county area appear to have better availability of prenatal care when compared to the national statistics because of improved availability of prenatal care. However, despite the availability of health care in the tri-county area, some of the adolescents in this population continued to have delayed entry into prenatal care. The adolescent, while developing her decision making ability, may not have yet attained the self confidence to recognize and make decisions related to seeking prenatal care (Chandler et al., 1990; Offer et al., 1990).

Another possibility for delay in prenatal care may be denial of the pregnancy. Many young adolescents continue to deny the pregnancy until the latter months of pregnancy even up until delivery. Fear of punishment, lack of resources and limited knowledge about bodily changes that occur during adolescence may promote the denial of pregnancy (Chandler et al., 1990; Hetchman, 1989; Offer et al., 1990) and thus reduce early entry into the health care system.

A third reason for the delay in initiation of prenatal care may be financial limitations. In a Johns Hopkins study, adolescents in the program had no health insurance and no coverage for either health care or hospital bills (Hardy et al., 1989).

Johns Hopkins Institute believed these factors may contribute to the delay in entry into the health care system, or poor compliance with prenatal care visits. It may also be a contributing factor in this study. The financial limitations of the study population are not believed to be as great as those in this inner-city program, because the state of Michigan provides prenatal care regardless of finances. However, it is acknowledged that further research may reveal some definite limitations pertaining to obtaining financial assistance for prenatal care among the adolescent population, especially in a primarily rural area such as Allegan County.

In conclusion, adolescents in the tri-county area are initiating prenatal care at a variety of times during their pregnancy. This study did not investigate reasons for why the adolescents chose to initiate prenatal care at the time they did, or if there was a delay in scheduling the first prenatal visit when contacting a clinic. At this time, only the research of others can guide the assumptions of why the adolescent made the choice she did. Further research in the tri-county area should incorporate the adolescent prenatal care seeking patterns with investigations of the knowledge base of the adolescents and the decision making process of the pregnant adolescent.

Adequacy of Prenatal Care

Younger adolescents received adequate prenatal care 22% (n = 8) of the time and intermediate prenatal care 55% (n = 20) of the time. Because the young adolescent population in Ottawa and Allegan County was so small (n = 3), a comparison of the individual counties in the tri-county area would not prove beneficial. In Kent County, it was apparent that younger adolescents received less than adequate prenatal care almost one fifth of the time. This is the concern, because adolescents less than 15 years of age are also the population often with more complications related to pregnancy when compared to the older adolescent population (Atrash et al., 1990). Conclusions in relationship to patterns of prenatal care of individual counties cannot be made from this data because of the very small population. However, health care providers should focus

the importance of prenatal care to include older and younger adolescents. Different interventions for adolescents ages 14 and younger may be necessary due to the higher incidence of complications and the less adequate prenatal care that younger adolescents tend to receive.

Older adolescents received adequate prenatal care 47% of the time (n = 726) and 38% of the older adolescents received intermediate prenatal care. Again these adolescents received more adequate prenatal care than the national average.

There is public transportation to enable adolescents to attend prenatal care in Ottawa and Kent counties. Health department nurses go into the schools to teach young adolescents about sexual activity in Allegan and Ottawa counties. Health department nurses and student nurses also visit with pregnant adolescents in the home to help decrease some of the barriers to utilization of prenatal clinics. Despite alternate forms of health education there are still difficulties maintaining consistency in prenatal visits among adolescents.

In summary, this was a description of the adequacy of prenatal care of a sample of 1583 pregnant adolescents in Kent, Allegan, and Ottawa Counties in 1990. It is assumed that the birth certificate was filled out accurately. This study shows that they are between the ages of 12 and 19. Younger adolescents had later initiation of prenatal care, however, it appears that once the younger adolescents are involved in prenatal care they tend to continue with their prenatal care. Older adolescents initiate prenatal care over 50% of the time in the first trimester, however, there is decreased attendance to prenatal care visits by a small percentage of older adolescents.

It is assumed that prenatal care was available to the pregnant adolescent. However, consideration must be made about the attitude of the adolescent towards prenatal care and her decision to access prenatal care. Some of the pregnant adolescents find that they are pregnant they want control over the pregnancy. Some of the adolescents may take that goal of control over their life and pregnancy and refuse to

follow health care recommendations such as deciding not to return for follow-up health care until they decide that they need health care to be provided to them (Chandler et al., 1990). Attitudes of the clinic or community may also contribute to the adolescents' compliance (Chandler et al., 1990; Offer et al., 1990).

Adolescents in the tri-county area are utilizing prenatal care at a slightly higher rate than the United States average, and it is assumed that pregnant adolescent females receive prenatal care that is comparable to that of pregnant adult females. However, adolescent pregnancy continues to be a significant problem in the tri-county area. Implications for the health care professional include evaluating how difficult it is for the adolescent to undertake prenatal care with a health care professional. It also includes educating the public including pregnant adolescents as to the importance of prenatal care, and investigating the ways and means of improving the utilization pattern by better meeting the needs of the adolescent population.

Adequacy of prenatal care in each of the counties was relatively similar (Table 5, Chapter V). Kent County had a slightly smaller percentage receiving adequate prenatal care, which gave them a higher percentage in the intermediate category. Other factors that could contribute towards maternal and fetal health were not taken into consideration. Therefore, prenatal visits may have altered the adequacy that the adolescent receives due to complications during pregnancy or early delivery. When the three counties were compared in reference to month of initiation of prenatal care the mean range for individual counties was between 3.1 and 4.6 months, and Ottawa County having the earliest initiation of prenatal care at 3.3 months. The median month of initiation of prenatal care was around the 3rd month for the older adolescents, and in the 4th month for the younger adolescents. Because this study was limited to Kent, Allegan, and Ottawa, the results may not be applicable to other counties.

It is important to note that the differences in the month of initiation is not practically significant, but that adolescents in all three counties are initiating prenatal

care late in the first trimester or early in the second trimester. This is of concern to health care professionals because of the fetal organogenesis that occurs, and the possibility that an adolescent may not understand the importance of good health habits throughout pregnancy.

Again, this researcher did not investigate reasons why the adolescent made the decisions she did. A decision was made to use data only provided from the MDPH. Other demographic data was not included. These factors as well as the adolescents attitude toward prenatal care could contribute to health care beliefs that influence the adolescent and her decision making.

Conceptual Framework

The Health Belief Model

The conceptual framework for the research, as shown in Figure 1 (Chapter II), offers the adapted Health Belief Model as it relates to pregnant adolescent females. This study focused only on the end result of pregnant adolescents and the contribution and adequacy of prenatal care they received. The adequacy of prenatal care depended on initiation of prenatal care and the number of prenatal visits received. Prenatal care was identified as the likelihood of action. The likelihood of action is dependent upon the modifying factors and individual perceptions related to health care and the importance of prenatal care of the pregnant adolescent female. The end result of the adolescent's action included how the initiation of prenatal care and the continuity of care received resulted in the adequacy of prenatal care.

The conceptual framework was used to explain the amount of prenatal care obtained by the adolescent population through the concept of likelihood of action. The likelihood of action was influenced by: (a) perceived benefits of decreasing maternal and fetal risks, and (b) barriers of demographic, structural and sociopsychological variables. These issues were not addressed in this study. The Adapted Health Belief Model used in this study should be revised to better fit this study. Revision of the model

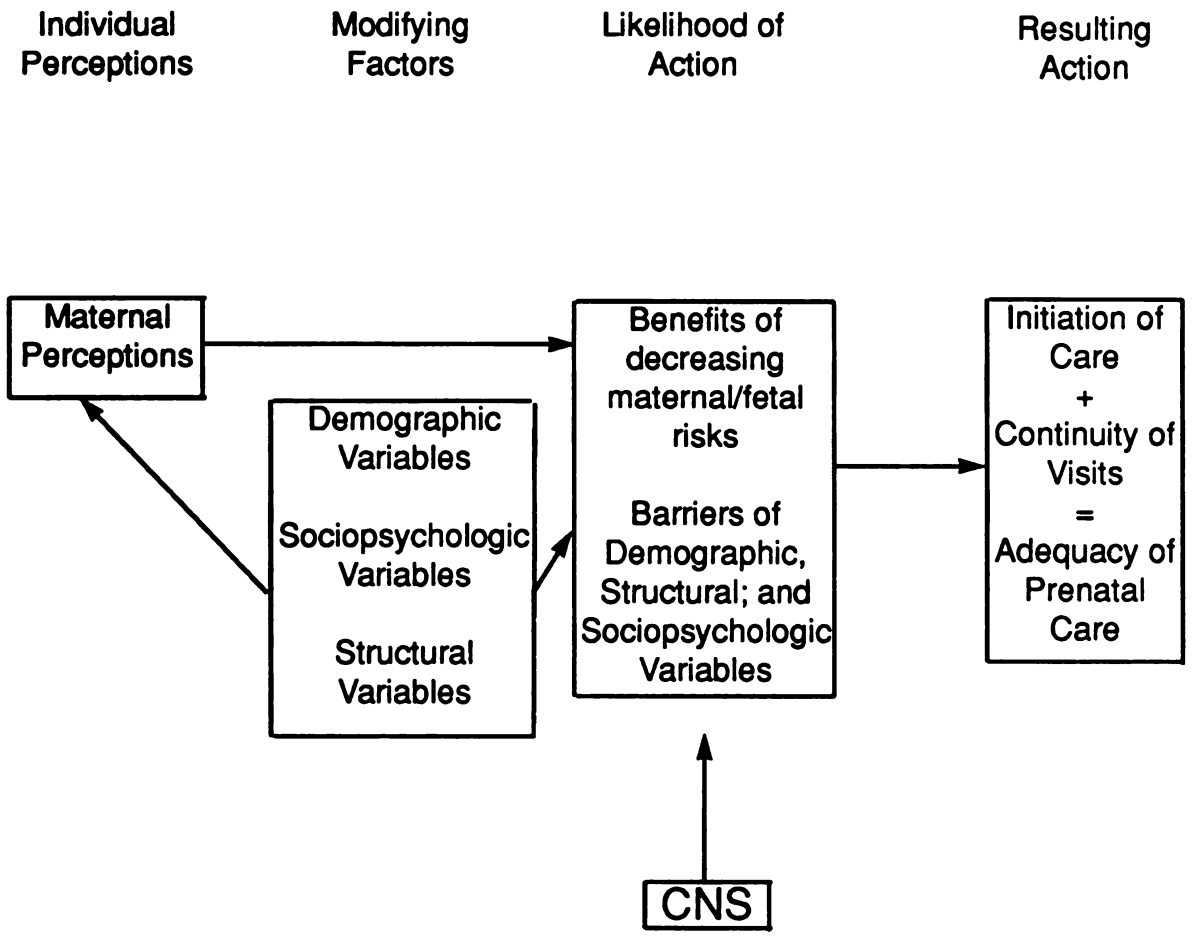

Figure 9. Adapted Health Belief Model-Revised (Becker & Marshall, 1974).

would have the end result of initiation and adequacy of prenatal care categorized separately as a resulting action (see Figure 9).

Because there are only about 50% of the older adolescents receiving prenatal care in the first trimester, and a slightly smaller percentage receiving adequate prenatal care, it may be because of modifying factors. For those adolescents who did initiate prenatal care at an early time in pregnancy, it may be that these adolescents perceived prenatal care as a benefit to their situation. A large percentage of those adolescents became involved in prenatal care throughout the pregnancy, and knowledge could be a key factor in understanding the benefit of prenatal care. The demographic variables, interpersonal variables and situational variables are better described as modifying factors influencing the adolescents in the tri-county area.

Interpersonal variables, such as expectations of others, influence the individual perceptions of pregnancy. This, in turn, impacts the adolescent's likelihood of initiating prenatal care thereby resulting in an action. Research has shown that pregnant adolescents are below average in their school performance, coupled with disinterest in school (Hetchman, 1989). There is a general expectation in Ottawa and Allegan counties to complete high school. It is assumed that there is not as great as expectation in Kent county. Because there is an expectation to stay in school, adolescents may delay pregnancy and take contraceptive action to prevent pregnancy or consent to a therapeutic abortion to conform to community expectations.

Another modifying factor, social influences such as the media, and peer pressure to please and be attractive to the opposite sex can influence the onset of sexual activity. In addition, a larger percentage of adolescents are being raised in single parent households (Hetchman, 1989). It has been hypothesized that as the single parent of the adolescent renews interest in dating, this may further influence the adolescent into similar behavior (Hetchman, 1989). Another example is the adolescent who is currently living in a disrupted home environment is also more likely to become pregnant. This

could be because of the adolescent's need to feel wanted, or loved or other interpersonal issues. The adolescent's home life is marked by poor family relationships, resulting in the adolescent feeling socially isolated and untrusting (Hetchman, 1989).

Once the adolescent has been influenced by modifying factors in the decision making phase of the Adapted Health Belief Model-Revised (see Figure 9), the perceptions of barriers and benefits will influence the likelihood of action. Further research needs to be done on the adolescent's perception of prenatal care and how it affects herself and her child. It is possible that in general those adolescents who participated in prenatal care had a positive perception of the impact of prenatal care. Those who chose not to participate could have done so for a variety of reasons. One of the reasons could be a negative perception of prenatal care. It may be viewed as a "hassle" or "embarrassing". The fear of breach of confidentiality is also something that may bother the pregnant adolescent.

The average age for pregnant adolescents giving birth in the tri-county area is 17.8 years. A study by Barron (1986) found that of the 68 adolescent females who maintained their first pregnancy, 53 had a second pregnancy as an adolescent. It is probable that a percentage of the adolescents in the tri-county area may have had prior pregnancies, and that may influence the health care seeking behaviors. This was not investigated, however, one may summize that a small percentage of adolescents have been pregnant more than once before age 19.

Actual barriers to action could also influence the adolescent. There is an average of 5% unemployment in the tri-county area. For those who are employed, most larger corporations include health insurance as a benefit and subsequently, the children are covered for their health care needs until they are 18. For those who have no health care, the State of Michigan has medical coverage for those pregnant women who are otherwise unable to afford it. Difficulty accessing health care insurance could influence the adolescent's decision to seek out health care. Not knowing that health care is available

could be a major factor in deterring adolescents in seeking health care.

It may be that the barrier that would have the greatest influence on the adolescents in their health seeking behavior is the actual access to health care facilities. The tri-county area has similarities as well as differences. Each of the countries has at least one hospital where babies are delivered. Allegan and Ottawa Counties have antepartum care for routine deliveries. There are two hospitals in Allegan County with a total of 114 beds. The nearest large medical facility is in Ottawa County. Ottawa County has over double the number hospitals beds and 179 physicians in the country. This is four times the number of physicians that Allegan County has. Kent county has a regional neonatal unit. There are also more physicians advertising "high-risk prenatal care" in Kent County. Again, Kent County has many times the physicians than Ottawa has and significantly more hospital beds. Despite the apparent availability of health care, it is questionable how easy it is to obtain care in the first trimester.

The location of the health care facilities varies in each of the counties. It may be that the location of the health care facilities does impact health care seeking. However, the location of the health care provider could be more significant to the pregnant adolescent female, because many of them may not drive, or have other means of transportation to health care providers' offices. This was not researched, and the information as to the location of all health care providers in the tri-county area was not easily accessed. Another interpersonal variable for pregnant adolescents is the interaction with health professionals.

The role of nursing in childbearing once was very significant. However, there was a shift to hospital delivery by physicians at the turn of the 20th century. As maternity care becomes a team approach, the role of advanced nursing is becoming increasingly significant once again. As nursing is incorporated into this model, the role of nursing is visualized as a contributor. The contribution is not only to improve the adequacy of prenatal care that the adolescent receives, but also impact the individual

perceptions, modifying factors, and likelihood of action that the adolescent perceives in relationship to prenatal care. The CNS can impart the adolescent in all aspects of the Revised HBM, however, these factors were not addressed in this study (Hansell, 1991; Offer et al., 1990).

Implication for Clinical Practice

Utilizing the nursing process format, implications from this research related to the nursing practice and the likelihood of action include: (a) determining the role of nursing in the care and treatment of the pregnant adolescent, (b) development of clinical services which will encourage the adolescent to seek and remain in prenatal care, and (c) implementation of a program to incorporate components into a clinical setting.

Primary Care Role of the Clinical Nurse Specialist

Research about and evaluation of programs providing primary care to pregnant adolescents supports the use of nurses in advanced practice to improve health and pregnancy outcomes (Neeson et al., 1983). Nurses in advanced practice tend to relate to their patients in a nonauthoritative way and focus on education and support for the pregnant teen (Neeson et al., 1983). The adolescent is still developing her independence and self control is a major task.

Development of Clinical Services

The data for the tri-county area showed that adolescents received prenatal care that is more adequate than the national average. Ideally, all pregnant women should receive adequate prenatal care, however, because some of the population may not understand the importance of prenatal care, or not be able to afford prenatal care, it is not likely that the entire population will receive adequate prenatal care in the near future. However, through concentrated effort of health care forces, the development of educational programs may improve the percentage of adolescents who receive adequate prenatal. Specific interventions will be discussed within the role of the clinical nurse specialist.

Especially for the pregnant adolescent female, provisions for adequate care and ongoing services is critical. The young female patient has multiple and complex physiological and psychosocial needs. Care for her needs to be focused on the setting in which multiprofessional groups can be brought together to provide effective care. This should include teachers, social workers, hospital personnel and health care professionals. Success of prenatal care programs for the adolescent depend on the following clinical goals to be included:

(1) Early intervention through early diagnosis and referral. Optimal prenatal care begins in the first trimester. Adolescents tend to initiate prenatal care at a later point during pregnancy, in this study, Kent County being the latest. Ideally, agencies who administer the pregnancy testing to the adolescent should refer the adolescent to a health care agency for follow-up. In the tri-county areas procedures for referral to an agency who administers health care to adolescents is unresearched.

(2) A clinical setting in which the adolescent feels that she will be cared for as an individual (Hansell, 1991; Wells et al., 1990). Staff need to exhibit actions that will be able to ensure that the adolescent's privacy, confidentiality, and actions will be respected. There already exists in the tri-county area a number of schools that incorporate the needs of the pregnant adolescent, such as facilitating completion of high school requirements. However, the number of pregnant adolescents allowed in each school is limited. Therefore not all adolescents would be able to access a program specially tailored to the pregnant adolescent's needs. For the adolescents to obtain prenatal care outside a special school, actual access is questionable. Because of the large number of adolescents initiating prenatal care in the second trimester, when the adolescent calls a health care provider to initiate prenatal care, it is not assumed if the health care provider will be able to establish an initial prenatal care visit with the adolescent in the first trimester. Second trimester initiation based on ability to access prenatal care could be because of the health care provider's policies, or difficulty on the health care provider's part to be able to give

the adolescent an appointment in the first trimester.

In the implementation and incorporation of the components of prenatal care, numerous programs have been developed across the country (Auterman, 1991; Gorsky & Colby, 1989; Stevens & Pavlides, 1989). These programs have been developed specifically to improve adolescent outcomes during antepartum. The tri-county area would benefit from the development of such programs. The implementation and incorporation of an adolescent pregnancy program in the tri-county area can be based on many of the roles of the clinical nurse specialist. These would include:

(1) Client Advocate.

Utilization of an advanced nurse practitioner could supply a continuity of care for the pregnant adolescent. Because Kent county has three teaching hospitals, all with resident clinics, discussing with residents the importance of adequate time with adolescents needs to be made. Reinforcing the unique needs of the adolescents also needs to be an issue of discussion with the residents and staff at the prenatal clinics. Explanations as to procedures and tests, necessity and patient comfort need also be a priority. No assumptions about the adolescent's level of understanding should be made. Continuity of care should also be attempted.

An orientation session should be conducted by staff that will have continued contact with the patient. The pregnant adolescent needs to understand the importance of continuous prenatal care.

In conclusion, as a client advocate, improving the adequacy of prenatal care utilization among adolescents begins by investigating accessibility of prenatal care by adolescents in the tri-county area. A second goal is to encourage effective, yet efficient time with the pregnant adolescent while she is in contact with the health care provider, thereby possibly improving compliance in prenatal care visits.

(2) Educator

Education outside of the office or clinic is also necessary. Nursing education and experience dealing with community networks, including schools, social services, mental health and health care centers are essential in order to provide comprehensive care and appropriate referral of adolescent clients for services.

Radio and television media can be employed to educate the community. Advertisements inform the community of the availability of prenatal care as well as educational programs. Announcements focusing on the availability of contraception and resources for help with pregnancy may increase the perceived availability for the adolescent, and especially reach the younger adolescents.

Parent teacher organizations are a place to teach the parents what the adolescents need to be learning. Normal physiology of the adolescent as well as sexually transmitted diseases are pertinent topics.

Church related groups are also an area where education needs to be directed. Church youth groups can have adolescent issues as a focus for their discussions. Again, contraception, sexually transmitted diseases and adolescent pregnancy can be discussed.

The schools in the tri-county area currently are working with adolescents at two different grade levels, the sixth and the eighth grades. Because the average age of menarche is age 12, and many of the sixth graders are 12, the education as to the physiological and psychological changes that the adolescents are experiencing may be occurring too late for them to fully benefit, versus if the adolescent begins education about sexuality at age 10. The CNS can work with the schools as to the importance of the earlier education, and initiate an earlier ongoing sexuality program for the grade school children.

When the child enters the middle school, sexuality needs to be presented, preferably by the same health care professional that discussed sexuality with them in the grade school. At this time, further discussion as to intercourse and the ramifications of

this action will be discussed. Options for counseling outside the school need to be made available. This strategy provides an option for adolescents to discuss concerns they have with the health care professional on a one-to-one basis. With the school's cooperation, there can be a place in the school, as well as outside the school to give the adolescent the flexibility to seek the type of additional needs they have. High school students need information about developmental changes in adolescence, intercourse, sexually transmitted diseases and the physiology of pregnancy. This needs to include options that the adolescent has, once she has an unplanned pregnancy and education as to the importance of prenatal care during antepartum.

Another educational tool which could be developed is a sexuality hotline sponsored by major hospitals and health care providers in the tri-county area. Phone calls from those who are not able or willing to come to a meeting can receive information relating to sexuality related issues. Pregnancy related questions can be addressed as well as preventative education. In addition, the educational needs of the pregnant adolescent within the health care system care system need to be addressed in a variety of methods including one-on-one teaching as well as small group discussions. Nutrition, human sexuality, family planning, preparation for labor and delivery, infant care and feeding, and maternal expectations can be implemented (Hetchman, 1989).

Improved education in the community will decrease the possibility that the inadequate prenatal care that adolescents are receiving is due to a knowledge deficit. It will also improve accessibility to knowledgeable sources.

(6) Evaluation.

Because of the apparent later initiation of prenatal care in Kent County, practices of health care providers in the tri-county area need to be assessed. Evaluation as to the cause of the delay in prenatal care needs to be researched. The question of health care providers' encouragement of initiation of prenatal care in the first trimester needs to be answered. One possible factor contributing to the delay of prenatal care is the practices

of the health care providers. If later initiation is the policy of health care providers, the health department, CNS, and the health care community need to work together to change that policy.

In summary, the research findings of adequacy of prenatal care were descriptive with the potential for nursing to impact these finding by improving the accessibility of prenatal care to the adolescent population through measures such as previously mentioned (Auterman, 1991; Gorsky & Colby, 1989; Hardy et al., 1989; Stevens & Pavlides, 1989; Youngs & Marean, 1989). While the findings from this study are descriptive only, implications about the primary care role of nurses include provision of support and collaboration with the educational system. It also reinforces a continuing goal for nursing education of health care providers related to the care of the pregnant adolescent. In the next section of this chapter implications for future research are presented.

Recommendations for Future Nursing Research

A number of implications for further research may be derived from this study. Suggestions for improvement of design of this study include implications with barriers, benefits and perceptions of prenatal care and pregnancy.

Barriers and Benefits

Prospective study. A prospective study of adolescents is suggested so that reasons for adequacy of prenatal care can be investigated. The adolescent makes her decision for prenatal care, depending on the benefits of decreasing the maternal and fetal risks that she perceives and the perceived barriers she experiences in seeking out prenatal care (Hansell, 1991; Hetchman, 1989). Because there are only about 50% of the older adolescents receiving prenatal care in the first trimester, and a slightly smaller percentage receiving adequate prenatal care, it may be that this is because of the benefits and barriers that the adolescent perceives. In a prospective study, the barriers and benefits can be addressed as they develop.

Questionnaire. A questionnaire can be developed to explore reasons for initiating or ceasing prenatal care. The data received can be shared with local health departments and health care providers in an attempt to identify and correct some barriers in the community.

Perceptions

Adolescents' perceptions of pregnancy and prenatal care need to be collected throughout the prenatal period to evaluate the possible fluctuations in adolescent attitude towards prenatal care.

Demographics

Information related to demographics of the population can be investigated in the future to possibly find a correlation between socioeconomic level, race, and living location to adequacy of prenatal care obtained. A second study utilizing the same research questions can be done to evaluate if this study was a single occurrence or a trend.

Summary

In Chapter VI a summary and interpretation of study findings was presented. Adolescents had later initiation of prenatal care in Kent County, when compared to Allegan and Ottawa County. Adequacy was also somewhat more inadequate when compared to Allegan and Ottawa Counties. This was evident among younger and older adolescents.

Modifications in the conceptual framework were made to change the focus of health care. The Adapted Health Belief Model was primarily illness prevention. The Adapted Health Belief Model was revised.

Recommendations for future nursing research were made. These include working to improve accessibility and availability for the adolescent population, teaching the community about prenatal care and its importance, and the further

evaluation of current prenatal care access in the tri-county area. These recommendations also include researching, barriers and benefits, perceptions during antepartum and further demographic variables.

APPENDIX A

Appendix A

Letter of Request for Data

January 15, 1992

Office of the State Registrar and Center for Health Statistics
Department of Public Health
3423 N. Logan/Martin L. King Jr. Blvd
P.O. Box 30195
Lansing, Michigan 48909

Dear Ms. Humphry:

As discussed on the phone, I am a Master's student working on a thesis with a specific focus of the adequacy of prenatal care of the adolescent based on Kessner's Index. I would like to include in my analysis all births to females 19 years of age and under in the counties of Kent, Allegan, and Ottawa counties for the most recent year that statistics are available. We had discussed including the elements of onset of prenatal care, number of prenatal visits, level of prenatal care based on Kessner's Index and age of mother in the aggregate format. After further discussion with my thesis commitee, the elements of number of prior pregancies and gestational age of infant at birth are also requested.

With our phone call, you had said to request the data, and if their was a cost, you would let me know.

Please feel free to call me if you have any questions in reference to my request. I can be reached at work at (517) 521-3958.

Sincerely,

Sonia D. Van Eyl Taylor
4609 Devonshire
Lansing, Michigan 48910

APPENDIX B

Appendix B

Letter of Available Data from the MDPH

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN/MARTIN L. KING JR., BLVD.
P.O. BOX 30195, LANSING, MICHIGAN 48909

September 16, 1991

Sonia Taylor
4609 Devonshire
Lansing, MI 48910

Dear Ms. Taylor:

I am writing in response to your inquiry concerning the availability of live birth data. All of the data elements mentioned in your letter (onset of prenatal care, mean number of prenatal visits, level of prenatal care, age of mother) are available in an aggregated format. The latest year of data we have is 1989. The birth certificate is the sole source of the data. I've enclosed a record layout and code book to assist you in deciding on the tabulations you will need for your thesis. If you have any questions I can be reached at (517) 335-8714.

Sincerely,

Kathy S. Humphrys

Kathy S. Humphrys
Statistician
Office of the State Registrar and
Center for Health Statistics

APPENDIX C

Appendix C

Letter of Approval from UCRIHS

MICHIGAN STATE UNIVERSITY

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

EAST LANSING • MICHIGAN • 48824-1046

March 3, 1992

Sonia Taylor
4609 Devonshire
Lansing, MI 48910

RE: THE PATTERN OF PRENATAL CARE UTILIZATION OF PREGNANT ADOLESCENT FEMALES IN A TRI-COUNTY AREA IN SOUTHWESTERN MICHIGAN, IRB #92-055

Dear Ms. Taylor:

The above project is exempt from full UCRIHS review. The proposed research protocol has been reviewed by another committee member. The rights and welfare of human subjects appear to be protected and you have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to February 28, 1993.

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

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,

David E. Wright, Ph.D., Chair
University Committee on Research Involving
Human Subjects (UCRIHS)

DEW/deo

cc: Dr. Mildred Omar
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