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The relationship of stressful life events, mastery, self-esteem, and social support, to the time of initiation into prenatal care by adolescents

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University of Hawaii, 1993
THE RELATIONSHIP OF STRESSFUL LIFE EVENTS, MASTERY, SELF-ESTEEM, AND SOCIAL SUPPORT, TO THE TIME OF INITIATION INTO PRENATAL CARE BY ADOLESCENTS

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
DOCTOR OF PUBLIC HEALTH
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ABSTRACT

This study examined the relationship between protective resources, stressful life events, demographic characteristics and the time of initiation into prenatal care by pregnant adolescents aged 14-18 years in Hawaii. A stress process model adapted from Lazarus and Folkman (1984) and Dormire, Strauss and Clark (1989) provided the framework for the study design. Protective resources of mastery, self-esteem and social support were measured using Pearlin's Mastery Scale (PMI), Rosenberg's Self-Esteem Scale (RSES) and Tilden's Interpersonal Relationship Inventory (IPRI). Newton et al.'s Modified Life Events Inventory (MLEI) was further modified and used to measure stressful life events. The researcher developed the tool used to assess sociodemographic characteristics.

The sample consisted of 54 pregnant adolescent volunteers recruited from a range of health care facilities, and 49 non-pregnant adolescent high school volunteers. Scores on inventories were used to ascertain if there was a difference in levels of 1) protective resources or 2) stressful life events associated between pregnant and non-pregnant adolescents. The dependent measure was the time of initiation into prenatal care (in gestational weeks). The independent measures consisted of protective resource scores (PMI, RSES and IPRI) and stressful life events (MLEI) scores.

The results of correlation analysis revealed no significant relationships between dependent and independent
measures; thus, variability in the time of initiation into prenatal care was not explained by the variables in the conceptual model. Significant differences were found on the social support tool (IPRI) between pregnant and non-pregnant adolescents as well as several demographic characteristics. Validity and reliability analysis of instruments were in the expected direction of previous research. No difference was found in scores on independent measures of those pregnant adolescents who initiated earlier (< 13 weeks) versus later.

Social support was perceived as being greater by the pregnant subjects than non-pregnant subjects. This finding may be unique to this sample and Hawaii, as pregnancy appears to gain more acceptance here rather than rejection. Recommendations for future research include additional qualitative research to explore social and cultural factors which may influence pregnant adolescents to initiate into prenatal care and the conditions necessary to encourage continued health care seeking behaviors.
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CHAPTER ONE
INTRODUCTION

Overview

Early initiation of prenatal care has been cited in the literature as being associated with better pregnancy outcomes. The advent of national and state objectives to encourage early entry into prenatal care has had some effect in selected populations; yet, significant numbers of pregnant adolescents have continued to seek late or no prenatal care (Hawaii State DOH, 1992; Giblin, Poland & Sachs, 1987; The Alan Guttmacher Institute, 1985; Gortmaker, 1979).

Various factors are related to the time of initiation into prenatal care. Adolescents are socialized by the culture and expected role behavior by significant others in the environment. Pregnant adolescents may tend to view and respond to pregnancy and prenatal care in the context of this socialization experience (Bell, Nordyke, & O'Hagan, 1989).

Adolescents experience stress as a part of normal development. Pregnancy may be experienced as an additional stressful life event which taxes the set of protective resources enabling the adolescent to cope with normal life stresses (Sadler & Catrone, 1983).

Protective resources have been described in the literature as originating intrinsically (e.g. self-esteem, self-efficacy, mastery) or extrinsically (e.g. social support) (Hardy & Zabin, 1991; Giblin et al., 1987; Caplan, 1981; Cassel, 1974). This study examined the relationship
between stressful life events and protective resources experienced by the pregnant adolescent, and the time of initiation into prenatal care.

**Statement of the Problem**

Approximately 38% of all pregnant adolescents under age 18 in the United States (U.S.) did not receive adequate prenatal care while only 16% of all pregnant women nationally received inadequate care (The Alan Guttmacher Institute, 1989). Adequacy is based on the definition accepted by The American College of Obstetricians and Gynecologists (ACOG, 1989), and refers to the number of prenatal visits in the pregnancy as being 12 or greater. Those who initiated delayed (second trimester) or late (third trimester) prenatal care represented 24% of the total number giving birth in the U.S. (The Alan Guttmacher Institute, 1989). The rate for adolescents in Hawaii who initiated delayed or late care was approximately 45 percent. The breakdown includes 10% who initiated during the last trimester and 35% who initiated sometime in the second trimester (Hawaii State Department of Health (DOH), 1990). Thus, it appears that the occurrence of delayed or late initiation into prenatal care exists in the pregnant adolescent population. Reasons may include logistics problems, lack of awareness of the pregnancy, and lack of desire to get health care, whether because of cultural norms or other reasons (The National Center for Health Statistics, 1991; The Alan Guttmacher Institute, 1985).
Some of the sociodemographic characteristics of pregnant adolescents have been studied (Scholl, Heideger, Ances, Belsky & Salmon, 1987; Perez-Woods, 1989); yet, the pattern of psychological and sociological characteristics of factors affecting health behaviors has not yet been adequately explored. The neglect of behaviors which promote health in pregnancy places the adolescent at increased risk for morbidity. This risk can result in significant psychosocial costs for the families and children of adolescents, and the adolescents (Schwartz, 1989).

Adolescents may also be at risk for morbidity because they are more likely to have socioeconomic, developmental and other situational stressors. They may not have developed a repertoire of protective mechanisms such as environmental mastery, self-esteem, self efficacy, and an effective social support network (Turner, Grindstaff & Phillips, 1990; National Center for Health Statistics, 1991). They may be overwhelmed by the pregnancy and choose to either deny or conceal it until the time when the pregnancy becomes obvious (Young, McMahon, Bowman, & Thompson, 1989). Circumstances can influence when and if the adolescent initiates prenatal care as well as the practice or neglect of other health behaviors. Studies support the facts that pregnant adolescents initiate prenatal care later than mothers over 20 years, and that they are at higher risk for a variety of adverse short and long term pregnancy outcomes (Geronimus, 1986; Gortmaker, 1979).
Morbidity places additional strain on the family who is already dealing with the pregnant adolescent affected by developmental or situational stressors. An adverse pregnancy outcome also involves psychosocial costs. Costs extend from the infant, who is more likely to experience morbidity and mortality in the first year to the family who supports the adolescent and her child (Graf & Perez-Woods, 1992; McAnarney, 1987).

Communities that contribute to support adolescent mother/infant dyads are also affected. Childbearing adolescents may experience diminished quality of life as a result of the early childbearing. This is a social consequence of significance. The literature indicates that a pregnant adolescent is at greater risk for experiencing less educational and career opportunities, of remaining a single parent, and for ultimately having larger family size and long-term poverty. These disadvantages may prevent adolescents from further maturing into adulthood or from having the necessary competencies to live and function independently and successfully in society (Turner et al. 1990; Grindstaff, 1988; Card & Wise, 1978).

In the U.S., the cost of supporting adolescent childbearing families is estimated to be $16.6 billion dollars annually (McGrew & Shore, 1991). A significant proportion of these costs go to pay for perinatal, neonatal, and childhood morbidity in both acute and community care settings. Young maternal age has been associated with
adverse neonatal outcomes, particularly preterm birth, low birthweight, and neonatal mortality (McCormick, Shapiro & Starfield, 1984; McAnarney, 1987). The economic cost of acute care alone for these infants is estimated to be several million dollars and over a billion dollars for all preterm low birthweight infants in the U.S. (Schwartz, 1989). The costs of supporting infants experiencing morbidity due to prematurity continue to rise. With advanced technology, many infants of very low birth weight (VLBW) survive beyond expectations, many with lifelong disabilities. For example, in 1985, low birthweight (LBW) infants accounted for 9% of all infants who were discharged from hospitals, yet they incurred 57% of the total acute care costs of nearly one billion dollars (Schwartz, 1989). This does not take into account the longterm support which may be necessary. The challenge still exists to identify and support adolescents through pregnancy in order to gain the best possible outcomes for the adolescent childbearing family.

**Purpose of the Study**

This investigation focused on the identification of stressful life events and protective resources which may interact to influence the time of initiation into prenatal care. The purpose of the investigation was to examine relationships between and among the presence of the following factors: 1) stressful life events; 2) selected protective resources such as mastery, self-esteem and the level of
perceived social support; and 3) the time of initiation into prenatal care by pregnant adolescents aged 14-18 years.

Information derived from analysis of the data can be used to understand the effects of stressful life events and protective resources on health behaviors of pregnant adolescents. Programs can be directed at early identification of stressful life events and interventions to support protective resources. These programs may also provide education which could lead to earlier initiation of prenatal care among adolescents.

**Background of the Problem**

In the sixth edition (1985) of the *Standards for Obstetric-Gynecologic Services*, ACOG specified that prenatal care should begin in the first trimester. Second trimester initiation is considered "delayed", while third trimester initiation is considered "late". Care is considered inadequate if prenatal visits are less than the number calculated for the length of gestation at delivery. In the 1989 edition of the Standards, ACOG did not set a specific time that initiation should begin, instead it made a broad statement regarding the importance of early initiation of prenatal care. This statement is "a woman with an uncomplicated pregnancy should generally be seen every four weeks for the first 28 weeks of pregnancy" (p. 16).

Various factors appear to be related to the time of initiation into prenatal care. Adolescents are socialized into the cultural norms and roles expected of them by
significant others in the environment. This socialization process influences sexual attitudes and behaviors. Pregnancy in some adolescents may occur in response to the predominant attitudes communicated by their families or peer groups. Pregnant adolescents may tend to view and respond to pregnancy and prenatal care in the context of this socialization experience (Bell, Nordyke & O'Hagan, 1989).

Adolescents experience stress as a normal part of development. Pregnancy may be an additional stressful life event taxing the set of protective resources that enable the adolescent to cope with usual life stresses. Identification of stressful life events occurring during pregnancy in adolescence has been considered from various health perspectives. Some stressful events identified have psychological roots and appear to be internally controlled while others are more socially or externally influenced. Examples of areas studied include: unmet developmental tasks and needs (Holt & Johnson, 1991; De Levita, 1983; Erickson, 1963); loss of education and other life opportunities (Card & Wise, 1978; Turner et al., 1990; & Grindstaff, 1988); the impact of single marital status (Ahmed, 1990); inadequate prenatal care (Perkins, Facoy & Nakashima, 1978); and adverse social outcomes (Lee & Corpuz, 1988; Geronimus, 1986).

Adolescents who are faced with the addition of pregnancy to an already increased level of stress may be at risk for adverse outcomes. Adolescents are moving through marked physical and emotional changes and must react to these
changes by mastering them, freezing them neurotically and characterologically, or retreating from them into psychopathology (Sugar, 1993). Middle adolescence is considered by some as the most stressful period of adolescence. During this time, adjustment problems peak and are associated with an increased struggle for independence and identity (Harper & Marshall, 1991).

When pregnancy is superimposed on adolescence, it is thought to represent a dual developmental crisis because the adolescents are coping with adult tasks of parenting during the period of maturation into adulthood (Holt & Johnson, 1991; Sadler & Catrone, 1983). Thus, they experience a significant amount of life stress, which may be mediated by social factors such as protective resources. Factors include social support, perceptions, and personal characteristics such as a sense of mastery, adequate coping abilities, and self-esteem (Dormire, Strauss & Clarke, 1989).

Research which has focused on the effect of protective factors on pregnancy outcomes of adolescents is limited. The lack of protective resources, coupled with the absence of meaningful interventions may potentiate risk so as to result in perinatal morbidity (Turner et al., 1990; Dormire et al., 1989). It is important to consider both the psychological and the biological risks in developing effective interventions to reduce risk. Social support is associated with perceived physical health (Connell & D'Augelli, 1990); and provides a stress buffering role (Thoits, 1982; Turner et
al., 1990); a higher maternal acceptance of pregnancy (Giblin et al., 1987); and better pregnancy outcomes (Oakley, Rajan & Grant, 1990; Turner et al., 1990). The presence of social support has demonstrated benefits, resulting in desired attitudes and behaviors in pregnant adolescents (Giblin et al., 1987; Dormire et al., 1989).

**Clinical Significance**

In 1985, The Alan Guttmacher Institute published a report which described the problem of adolescent pregnancy and its current and potential impact on the United States. Since 1985, two thirds of the states have worked to improve organizational approaches to this problem by "coordinating services and programs, expanding support for individual agencies and forming task forces to plan initiatives aimed at reducing the incidence of too-early childbearing" (Center for Population Options, 1991, p. 5). The approach which has been promoted by the past two presidential administrations has been centered on abstinence from sexual intercourse. Such an approach has been directed through Title XX of the Public Health Services Act, named the "Adolescent Family Life Act." This approach has had limited success as evidenced by the increasing numbers of sexually active adolescents over the past decade. The percentage of sexually active women aged 15 through 19 rose from 43% in 1982 to 51% in 1988 and is continuing its upward trend. The number of teens who become pregnant is stable at approximately one million annually, with this rate being the highest of all developed countries,
and almost twice that of England, France and Canada (Center for Population Options, 1991). In Hawaii, one of the priority objectives designated as "high", is to reduce the number of pregnant females in any ethnic group who initiate delayed (2nd trimester) or late (third trimester) prenatal care to less than ten percent. The situation regarding this objective was described as follows: "Overall, annually between 1979-1988, from 20 to 25% of pregnant women throughout Hawaii did not receive prenatal care during their first trimester. As the annual percentage continues to far exceed the 1990 objective of 10%, it is unlikely that the objective will come close to being realized (Hawaii State Department of Health, 1990, p. 25). It appears that additional research is needed to determine how existing programs can be shaped to better meet the needs of the target population they are meant for, as well as evaluation of the content and efficacy of programs in preventing adverse pregnancy outcomes.

The Center for Population Options (1991) has stated that several national priorities for reducing teen pregnancy and too-early childbearing are: outreach; education; pre and post-natal services; and increased federal and state funding for family planning, and teenage pregnancy prevention programs. In order to provide effective programs for adolescents, a needs assessment which provides information about the values and culture of teen populations needs to be done. Information derived from such an assessment could
provide data to shape and drive the implementation of health promotion and prevention programs. It was the intent of this researcher to provide such data concerning the nature of stress and protective resources to better serve the needs of pregnant adolescents and to increase the rate of first trimester initiation into prenatal care.

Summary

Nationwide, adolescent pregnancy is associated with poorer birth outcomes than pregnancy in women over age 20. The negative effects result in increased lifestyle and social costs for adolescents, the offspring, families, and society. Early initiation of prenatal care has been associated with improved pregnancy and birth outcomes. There are many factors associated with initiation into prenatal care, some are socially determined while others are internally based on the socialization experience of the pregnant individuals. This research attempted to learn more about selected psychosocial factors thought to influence health behaviors. Information regarding the relationship of psychosocial factors to the time of initiation into prenatal care may influence health care professionals to plan and provide health education and services. The goal of these efforts can take on a culturally sensitive perspective to the needs of pregnant adolescents, while still aimed at prevention of perinatal and neonatal morbidity, and thus, resulting in improved outcomes of pregnancy for adolescent childbearing families and communities.
CHAPTER TWO
REVIEW OF THE LITERATURE

Overview

This chapter presents a review of literature focused on theory and previous research related to the relationship of stressful life events and/or protective resources to time of initiation into prenatal care among pregnant adolescents. First, an introduction is given to the importance of prenatal care. Next, the problem of pregnancy in adolescence is discussed with respect to adverse pregnancy outcomes, the influence of cultural/socialization factors, adolescent development and consequences of adolescent pregnancy to society. Specific adverse outcomes discussed include: associated risk factors, preterm birth and low birthweight. Stress and protective resources are examined as they interact in and affect pregnant adolescents. The literature from which the conceptual framework for the study originated is presented and the final part of the review concentrates on presentation of broad and specific research questions which form the basis for this study. Gaps in the literature regarding topics reviewed are discussed at the conclusion of the chapter.

The Importance of Prenatal Care

The effectiveness of prenatal care has been under study for more than a decade; however, the primary focus has been on the physiological factors affecting the initiation of prenatal care or on outcomes of the pregnancy as related to
adequacy of care. Only recently has the psychosocial domain entered into consideration with studies done about social support, attitudes toward pregnancy, self-esteem, mastery, psychological well-being as related to health seeking behaviors or pregnancy outcomes, particularly preterm labor and birth and low birthweight (Bryce, Stanley & Enkin, 1988; Tilden, 1983; Nuckolls, Cassel & Kaplan, 1972; Norbeck & Tilden, 1983; Newton & Hunt, 1979, 1984; Klein & Goldenberg, 1990).

Kalmus and Fennelly (1990) studied a convenience sample of 500 low income women. Within the sample, 90% did not seek prenatal care or did so in the last trimester. Over 50% reported having no health insurance, were under age 19, unmarried, and had not finished high school. The majority of the participants in the study reported both structural and motivational obstacles to seeking prenatal care. The barriers reported by the participants included, in order of priority: 1) family/personal problems; 2) cost; 3) depression; and 4) transportation. Those who sought care late in pregnancy or had no care reported an increase in family/personal problems and depression as compared to those who sought care in the first or second trimester. This was assessed by responses recorded by participants on a tool comparing low versus high number of prenatal visits. The results from this sample may be of limited value due to the non-representativeness of the study sample. Schlesinger and Kronebusch (1990) point out, that based on a United States
General Accounting Office (GAO) study of prenatal care in 1987, "women with no regular source of care had by far the worst access to care" (p.103).

Gortmaker (1979) retrospectively reviewed birth certificate data from live births and infant deaths to investigate the relationship between prenatal care and pregnancy outcome. He found that women were less likely to have a low birthweight baby as prenatal care visits increased in numbers; however, he did not control for behavioral variables which alone might cause low birthweight. When certain sociodemographic characteristics were controlled, low birthweight births were not significantly different for those with low or high number of prenatal visits.

In Hawaii, the incidence of women in all ethnic groups receiving unknown or no prenatal care or last trimester care is 12% (n = 2428 / 20438) (Hawaii State DOH, 1990, Table 15, p. 20). In 1990, the percentage of adolescents in Hawaii with no first trimester prenatal care ranged from 40% for ages 18-19 to nearly 60% for teens 14-15 years old. This does not take into consideration marital status (Hawaii State DOH, 1990). Most, however, have initiated prenatal care by the end of the second trimester (Hawaii State DOH, 1992). Since adolescents in Hawaii often receive limited prenatal care, they have been identified as being at high risk for perinatal morbidity and mortality.

In summary, the role of prenatal care in pregnancy outcomes has been under study for more than a decade. The
focus has been on time of initiation and adequacy of care in terms of the number of prenatal visits. Research has supported that the earlier the initiation or the greater the number of visits is associated with better perinatal outcome with respect to delivery at term and birthweight appropriate for gestational age (Kalmus & Fennelly, 1990; Gortmaker, 1979). The majority of studies dealing with prenatal care initiation cited in the literature, including those cited in this review, have been done retrospectively or were comprised of non-representative samples; thus, they may be of limited value in determining associations. Adolescents have been seen as a high risk group because they tend to initiate later than women over 20 years of age. In Hawaii, this is particularly true, as the percentage of adolescents who initiate care sometime after the recommended first trimester is 40% generally and 60% among teens age 15 or under.

The Problem of Pregnancy in Adolescence

Adolescent Pregnancy Outcomes

Perinatal/Neonatal Morbidity

Associated Risk Factors. Geronimus (1986) conducted a population based study to determine whether racial identification, place of residence or adequacy of prenatal care affected the relationship between maternal age and neonatal morbidity and mortality. Data were drawn retrospectively from a multi-state registry containing over 300,000 records. The results indicated that neonatal risks vary by age of the teen, amount of prenatal care and racial
identification. Highest risk teens, those who received inadequate prenatal care, were younger (<17), of black ethnicity, and resided in rural areas. This appears to reflect a social selection process. When race and prenatal care were controlled, adolescents were not at higher risk than mothers over age 20 years old for neonatal morbidity and mortality. The existence of a relationship between age of the teen and neonatal risk was supported. This relationship may have been potentially confounded by environmentally induced circumstances.

Risk factors leading to prematurity, low birthweight, and infant morbidity/mortality are those of inadequate prenatal care, poverty, limited education, and structural and/or motivational barriers to seeking primary health care (prenatal care). These factors have been isolated by some researchers, who have then studied their association to pregnancy outcome in a cohort of adolescents, usually in a particular ethnic group or geographic location. This tends to limit generalization of findings outside of the sample; yet, some of these studies have been replicated in other populations with success. Several studies have been published supporting the effectiveness of prenatal care in reducing premature birth and consequently infant morbidity and mortality (Gorsky & Colby, 1989; Korenbrot, 1984; Schramm, 1985; Elster, 1984).
The majority of these studies were conducted in urban areas with large high risk populations. The results of these studies provide a reliable profile of urban women that may be extrapolated to pregnant adolescents in similar areas. Although, at first glance, it appears that there is an increase of prenatal programs and access possibilities, closer inspection identifies a problem which lies beneath the access to care issue, the lack of services utilized by high risk populations including pregnant adolescents.

Teenage pregnancy was found by Lee & Corpuz (1988) to influence the national neonatal mortality rate only minimally because of the power of sociodemographic factors over birthweight distribution, regardless of maternal age. "The maternal age-specific neonatal mortality rates in the United States have not been reported. For this reason, one cannot with confidence weigh the impact of teenage pregnancy on the overall national neonatal mortality rate" (Lee & Corpuz, 1988, p. 937).

Perkins et al. (1978) concluded that young maternal age is less of a factor contributing to negative pregnancy and neonatal outcome than inadequate prenatal care. This is supported by Zuckerman et al. (1983) in a prospective study enrolling all consenting eligible subjects. The sample consisted of 1962 mothers, 315 who were primiparous adolescents and 498 who were primiparous non-adolescents. Univariate analysis was used to assess variance on certain maternal characteristics and stepwise multiple regression was
used to examine the relationship of variables to gestational age and weight at birth. Results indicated that 40% of the variance of birthweight in infants of adolescents 13-18 years of age was explained by maternal race, pre-pregnancy weight, pregnancy weight gain, marijuana use, and the infant's gender and gestational age. The results supported the hypothesis that for primiparous women of all ages, factors other than age are associated with low birthweight and other neonatal morbidity. This leads one to question the relationship between marijuana use in adolescents and the incidence of low birthweight and neonatal morbidity.

Ahmed (1990) retrospectively studied pregnancy outcomes in 36,608 urban black women. A logistic model was applied to 23,461 births to mothers over age 19. Maternal age, educational attainment, and adequacy of prenatal care were controlled. The odds ratio for low birthweight of infants born to unmarried mothers was 1.18 (CI 1.13 - 1.23). He found that while teens who delivered the first child before age 17 were not found to be at a higher overall risk than older mothers or at a higher risk for low birthweight, 80% of mothers who gave birth for the first time before the age of 18 had been unmarried and many remained unmarried. This group experienced a 35% higher rate of low birthweight and a rate of narcotic addiction three times higher than married women. Such results indicate the importance of considering the effect of demographic risk factors such as marital status and the specific high risk behaviors associated with them.
Categories of risk are multifactorial; the specific causes of factors leading to morbidity have not been fully isolated.

One of the most notable risk screening systems used by several obstetric services in the United States is the Problem Oriented Perinatal Risk Assessment System (POPRAS). The tool is comprised of mostly physical and few psychosocial risks except for a few broad categories (Ross, Hobel, Bragomer, Bear, & Bemis, 1986). The tool has not been found to have significant ability to predict preterm birth, but it is able to identify risk factors. There exist numerous reports of associations between independent psychosocial risk factors and preterm birth, but there is no conclusive evidence of an interdependent relationship to one of the most costly health problems to society today: preterm birth.

**Preterm Birth.** One indicator of perinatal morbidity is preterm birth. It is estimated that 80% of all preterm births are the direct result of preterm labor. Graf and Perez-Woods (1992) suggest four major causes of preterm labor. These are: 1) complications of pregnancy; 2) epidemiologic factors; 3) iatrogenic factors; and 4) unexplained causes. In adolescents, there are several significant risk factors associated with preterm delivery, such as black ethnicity (Geronimus, 1986), inadequate pre-pregnancy weight and pregnancy weight gain (Scholl et al., 1990), increased consumption of alcohol, tobacco and drugs (Abma & Mott, 1991), and lack of adequate prenatal care (McGrew & Shore, 1991).
**Low Birthweight.** Scholl et al. (1990) conducted a cohort study from convenience sample of 2008 adolescents registered for prenatal care in a federally funded demonstration project in New Jersey to determine the predictive ability of early weight gain on birthweight. The researcher found that as early as 12 weeks gestation there existed a significant relationship between maternal weight gain below the 25th percentile and subsequent low birthweight. The adjusted odds ratio was 1.56 with a 95% confidence interval of 1.01-2.43, and by 20 weeks gestation, the odds ratio increased to 2.0 with a 95% confidence interval of 1.34-2.99. These results suggest that certain adverse neonatal outcomes may be predicted late in the first or early in the second trimester. Separate regressions of maternal weight gain during pregnancy on birth weight were fitted at each gestational age after controlling for suspected confounding variables.

On the island of Oahu, Hawaii, in the high risk target areas, which have a greater number of high risk pregnancies, births to single mothers are high, ranging from 189 per 1000 for Waimea to 378 per 1000 for Waianae. Forty-nine percent of these births are to teens. Hawaiian teens have the highest rate of inadequate prenatal care, the highest number of low birth weight infants, as well as the highest rate of infant mortality (Hawaii State DOH, 1990). One researcher reports that Hawaiian teens also experience nearly one third
of all births to teens and account for nearly 43% of all infant deaths to teen mothers (Loos, 1988).

In summary, there is little research that is conclusive to support that adolescents have a higher than average incidence of perinatal/neonatal morbidity and mortality simply due to young age. The relationship between risk and outcome is complex, and levels of significance that have appeared in some studies have primarily been correlated to socioeconomic status and ethnicity and other risk factors.

**The Influence of Cultural/Socialization Factors**

Socialization is the process through which culture and roles are transmitted among individuals as they become part of a social group (Theodorson, 1969). This process begins within the nuclear family and broadens to include other individuals as children are exposed to them. Socialization influences the context of thinking and the way in which lifestyle decisions are made. The "life-span" theory (Elder, 1985) suggests that transitions through various life stages are thought to be largely influenced by normative expectations significant others have of individuals.

Hardy & Zabin (1991) propose that there are selected influences along the life course which determine the direction of an individual's development. They are inter-generational biologic/health influences and family/environmental influences. The family/environmental determinants are those which promote socialization of an individual. They begin with the relationship to parents and
their family, in which values are transmitted regarding culture, attitude and behavior, until such time when a child is subjected to the influence of daycare or school. The child may then learn different values than in their family and even at young ages may be faced with values choices which are reflected in their behavior depending on what they feel is expected of them.

In some cases adolescents can become confused as to what values they hold, because they often must switch values to match those of the parent they happen to be with at the time. Other influences include religious affiliation and as they become older, the work environment (Gullotta, Adams & Montemayor, 1990).

What theorists describe as the "typical" chronology of socialization is complicated by forces which act either in addition to or instead of what is typical. The most significant example of an influential force which has the power to socialize beyond even parental influence is the media. In the United States, almost every household, no matter how poor, has a television, and the television may be used by parents as a baby-sitter or a diversion from the time a youngster can focus on it. The influence of the media has caused a disruption in the once "typical" pattern of socialization (Esman, 1990).

Adolescents are caught at a midpoint of the socialization process. They may be unsure of their values because of the large amount of input they receive regarding
values from a variety of sources. Thus, when an adolescent becomes pregnant, she is faced with weighing values from various sources to determine her behavior and her role. A stereotypical view of adolescents in the United States is quite negative. This view is promulgated by the media in the depiction of adolescents as messy, rude, and moody (Peterson, Kennedy & Sullivan, 1991). This view may be generated from the material focus of adolescents intrinsic values and the tendency to egocentrism.

Parents can be negative elements in the social system. Biologically the pregnant adolescent is a soon to be a parent, but she is often still dependent on her parents or family for economic and social support. This sometimes results in the adolescent's concession to the parents of her right to make decisions normally made by adults who are becoming parents. How the parents assist or make these decisions can create stress in the social system of the pregnant adolescent (Smilkstein, Helsper-Lucas, Ashworth, Montano & Pagel, 1984). As early as 1959, it was suggested that adolescents experience heightened orientation to peers that influences the orientation to family. It was held that adolescents, particularly girls, do not abandon emotional ties with parents as easily as they shift companions (Bowerman & Kinch, 1959). Thus, the influence of parents appeared to remain significant through adolescence and beyond.
Peterson and Crockett (1985) in a rural study of adolescents, identified associations between sexual behaviors and factors related to expectations for early transition to adult roles. Girls who became sexually active in junior high school anticipated making several adult transitions at earlier ages than non-sexually active girls. Familial transmission of these expectations was evidenced. For example a mother's age at first birth was strongly related to her adolescent daughter's level of sexual experience. Hogan and Kitawa (1987) found that girls who had a sister who had become pregnant as a teen were more likely to be sexually active and also to become pregnant. Fox (1981) asserts that a common connection to early sexual activity is a permissive attitude about sex passed on from mother to daughter. Another factor that may have significant influence on adolescent sexual activity is the incidence of pre-pubertal sexual abuse and its effect on timing of physical maturation and/or amplification of normal pubertal effects (Trickett & Putnam, 1987). Butler (1988) found that 54% of white adolescent mothers had been sexually abused. Mothers who had been abused were more likely to abuse (Egeland, Jacobvitz & Stroupe, 1988).

In Hawaii, it is not uncommon for adolescent pregnancy to be a normative expectation. This may result from the prevalence of large families and a history of past pregnancies in the mothers of adolescents. Hawaiian youth have been socialized into a families, where pregnancy and
birth are valued. Native Hawaiian women have been shown to have lower levels of education, in part as a result of a substantially younger age at first birth. Thus, the perception may be that teens who are sexually active are doing no less than what they feel is expected of them to carry on the family bloodline (Bell, Nordyke & O'Hagan, 1989).

In the past decade, there has been significant modernization of Hawaii, a rapid acceleration which has resulted in higher cost of living and an increase in dual wage earning families (Hawaii State DOH, 1990). The process of socialization may have been shifted from the nuclear family to other social systems such as the educational system, the church or the media. This shift may have been responsible for causing confusion in youth regarding values and cultural norms that were historically passed to children from their families (Bell, Nordyke & O'Hagan, 1989).

The Influence of Adolescent Development

Hall (1904) fathered the theory of the psychology of adolescence, and proposed that adolescence is a period of stress and storm, a time of rebellion, and a time of great emotional, sociological and ideological lability. The idea of storm is supported by Lewin (1939), who viewed the adolescent as being caught in a series of conflicting forces. He also characterized the adolescent as being ideological, unstable, and emotionally labile. These ideas have remained unchanged.
De Levita (1983) suggests that adolescence is a time when the adolescent has a chance to compensate for developmental task deficits which occurred during childhood. He describes the process of deficit much like a steeple-chase, whereby the child has to jump over a number of obstacles by using his drives and talents. These obstacles have been put in the adolescent's way by individuals or groups in society in order to influence adaptation to societal effects. The concept of adolescence as the conclusion of childhood was a basic idea generated by Jones (1922). Hall (1904) suggested adolescence to be a process of "recapitulation".

Freud (1905) proposed that development was genetic, and influenced by how the child has passed through earlier development. He suggests that the adolescent experiences a surge of sexual instincts after the "latency" period of childhood and that how she copes with that surge relates to past resolution of conflicting wishes in early childhood.

Lewin (1939) views adolescence in terms of roles. He contends that there is a clear distinction between the role of an independent adult and that of a dependent child. An adolescent could be called upon to function in either role as her parent would see fit. The parents' expectation of the adolescent might change momentarily, perhaps related to personal dissonance between the desire to nurture independence in the child and reluctance to release control on her. The adolescent experiences role confusion and
conflict with subsequent stress that may be heightened by her physical changes (De Levita, 1983).

Havighurst (1972) formulated a series of developmental tasks which society expects to be fulfilled for each stage of development. Mastery of these skills depends on maturation and personal motivation. The childbearing adolescent is seen as going through a dual developmental crisis (Sadler & Catrone, 1983). Erickson (1963) defines human development as a gradual unfolding of the personality through phase specific psychosocial crises. In Erickson's (1963) developmental tasks model, a child passes through stages which occur consecutively. Should the child encounter an obstacle which is too high to negotiate, further development may be interrupted.

If the achievement of developmental tasks is interrupted, fixation on the missed developmental tasks may occur, resulting in unconscious integration of unmet needs in particular stage(s) into the child's character. Unmet needs may be displayed to society as problem behaviors. Some of the problems in pregnant adolescents may be related to ineffectve efforts in meeting prior developmental needs. This may be evidenced by anger of the adolescent related to lack of power.

Adolescents who become pregnant may perceive little sense of personal control or independence and may use pregnancy either consciously or subconsciously to meet the task of achieving independence (Holt & Johnson, 1991; Flick,
1986; Wallis, 1985; Douvan & Adelson, 1966). Psychologically they are coping with the adult tasks of parenthood before completing the maturational crisis of adolescence. Superimposing the demands of pregnancy and parenthood at this time means that the adolescents may be paying a very high physical, emotional, social and economic price unless they receive support spanning all dimensions of life (Smith, 1984).

The tasks of adolescence have been widely discussed in the literature. A common thread to many of these discussions is the acceptance of Erickson's (1963) theory of childhood development as a model from which to discuss the many problems adolescents face. Erikson proposes that the areas important in adolescent development are identity formation, independence and establishment of peer relationships. This would be a time when they could experiment freely with adult roles before integrating them into their identity and future development. Adolescents experience identity versus role confusion as a crisis of attempts to identify aptitudes and options and working to integrate these into their self-image. In order to effectively negotiate this crisis, they must achieve independence from their parents and form an adult identity which integrates gender, personal values, and a functional role in a career, as well as intellect (Johnson, 1986; Mercer, 1979).
In summary, the problem of pregnancy in adolescence revolves around the influences of cultural and socialization factors with regard to the acceptability of pregnancy in adolescents of various ethnic groups and the values that adolescents have been exposed to and which have been imprinted into their belief systems.

Many researchers concur that adolescence in itself is a time of stress. This stress is influenced by stressful life events or changes, role strain and unmet developmental tasks. When pregnancy is superimposed onto stress already present in an adolescents' lives, they may be faced with incorporating the tasks of parenthood before adolescent developmental tasks are accomplished. Pregnancy may also be seen by adolescents as a means of achieving independence from their parents, so that their own identity can be developed. As a result society must often deal with the cost and adverse outcomes often associated with adolescent pregnancy.

**Consequences of Adolescent Pregnancy to Society**

The costs to the public of adolescent pregnancy and neonatal morbidity, especially preterm birth are high. Pregnancy is the most likely reason for girls to drop out of school. Teen mothers, if unmarried, are half as likely to graduate from high school as other females (Elders, 1991). Costs incurred from adolescent pregnancy are influenced by pregnancy and birth complications.

There is increasing support for the idea that young maternal age may be a marker for social rather than
biological disadvantage (Morris, 1981). Social disadvantage is a multidimensional problem which exhibits itself in a variety of ways such as inadequate nutrition, housing, access to primary care, and excessive stress (Geronimus, 1986). Lack of primary resources coupled with excessive stress often results in higher tertiary costs for perinatal morbidity. These costs may be wholly or partially absorbed by state or federal assistance programs. This translates into a financial burden in handling neonatal morbidity and mortality arising from adolescent pregnancies (Schwartz, 1989).

In a retrospective study regarding health care expenditures related to neonatal morbidity, Schwartz (1989) summarized data from a stratified sample of 360 urban hospitals, based on number of beds and teaching intensity (residents per bed) using 1985 data. These 360 hospitals were divided into 14 groups. Two hospitals were randomly selected from each group and enrolled in the study. A cost analysis of preterm low birthweight infants was conducted. The analysis revealed that if only 20% of infants moved from one birthweight group to the next upward group, there would be an immediate savings of $75-$95 million dollars of the approximately one billion dollars spent annually on these infants. A bias analysis was performed to compare the 28 study participants to non participants and no significant differences were noted.

In Hawaii although the actual numbers of infant deaths are small (193/20,000 in 1989), the number of infants who are
born preterm and survive keeps growing (Hawaii State DOH, 1989). Many of these infants suffer morbidity. Care in their first year alone has cost the States millions of dollars, with subsequent monies spent supporting children with disabilities through childhood. Some may receive support for the entire length of their adult lives. This does not take into account the support which is provided to their families. These families experience the burden of paying for the cost of acute and chronic care for their infants who may not live to their first birthday (The Alan Guttmacher Institute, 1989).

In summary, the consequences of adolescent pregnancy to society are significant. Adolescent pregnancy may not always result in higher incidences of morbidity and mortality, but many adolescents are ill prepared for the role of mother and for taking financial and emotional responsibility for the situation they created by choice or neglect. Thus, it is incumbent upon communities and society as a whole to take on what the adolescent cannot. Ultimately, there are many dollars spent to attempt to support these mothers through many years until they can take on individual responsibility for their families. Several areas which have been focused on by researchers are adolescent stress, social support, self-esteem, needs and behaviors.
Stress and Protective Resources in Adolescent Pregnancy

**Stress**

There is little agreement in the literature on the definition of the concept of stress. Stress has been considered the response of a person's body to demands (Selye, 1976), or as a set of transactions in a demanding situation which taxes a person's resources or coping capabilities to evoke a negative effect (Mechanic, 1970; Lazarus, 1966).

Lazarus (1966) defines stress as a psychological condition involving a person's perceived inability to cope with a future stimulus. Mechanic (1970) emphasizes the importance of consideration of stress as a continuous variable and that stress increases as the balance between internal resources and external demands increases. Kahn (1970) distinguishes between "stress", the demand or pressure directly exerted on a person by a stimulus and/or "strain", the degree of perceived demand by the individual. Pearlin, Leiberman, Menaghan and Mullan's (1981) paradigm of stress describes stress as a component in a process. The components might be life events, chronic strains or a combination of them. These ideas have led researchers to develop tools which permit subjects to evaluate both the tone of the life event as well as the impact of the event on them (Norbeck, 1984; Tilden, 1983).

Stress has been defined by Holmes and Rahe (1967) as a stimulus which causes disruption. In this theory of stress as a stimulus, stress was originally measured as changes
affecting well-being, while in a later revision those changes were referred to as life events or changes thought to increase vulnerability to illness. Dohrenwend and Dohrenwend (1974) suggest the link between stressful life events and both physical and mental illness. They define stressful life events as events or requirements of an individual which necessitates adaptation to new roles or coping strategies.

Critical assumptions underlying the stimulus model of stress include: 1) that particular life changes result in the same "expenditure of adaptation units across time and across people" (Lyon & Werner, 1988, p.5); 2) the tone of perceptions whether negative or positive regarding events is irrelevant; and 3) a common threshold exists beyond which disruption occurs (Lyon & Werner, 1988). The person is thus viewed as a passive recipient of stress. Stress is considered a stable construct which can be measured by researcher selected life events that have been assigned normative weights from mean scores. The stress score is derived from summary of responses which have been weighted from previous statistical significance in other populations or simply counting the events which have occurred (Rahe, 1977). Socio-environmental conditions differ in the capacity to induce stress, however there are some conditions which have been shown to pose a universal threat. Researchers have weighted life events according to data they have on average amount of readjustment needed (Dohrenwend & Dohrenwend, 1978). Measurement tools are used to measure stress as a
unidimensional construct which does not take into consideration other factors affecting the impact of experienced stress.

Adolescents are faced with various developmental and situational stresses and the addition of pregnancy can compound the degree of experienced stress. They often require significant social and economic support to cope with this stress (De Levita, 1983; Erikson, 1963; Holt & Johnson, 1991).

Selected psychosocial studies in the literature which focus on pregnant adolescents deal with the relationship of stressors or risk factors to pregnancy outcome. Some of these studies consider psychological issues while others deal with sociologic issues. Abell, Baker, Clover and Ramsey (1991) suggest that studies on psychosocial issues fall into the areas of maternal anxiety and depression, planned versus unplanned pregnancies, stress and social support. They conclude that overall pregnancy complications are associated with a wide range of factors, such as "life stress" supported by Norbeck and Tilden (1983), and a combination of high life stress and low social support, supported by Nuckolls et al. (1972).

The social environment is a complex open system made up of cultural, psychosocial, structural and interpersonal subsystems which have adaptive and adjustive properties. How an individual relates to and perceives his/her social system affects whether it induces or reduces stress. Stress in the
social system approximates a biological phenomenon which arises when a person is subjected to elements perceived as negative in the social system (Dean & Lin, 1977).

Stress experienced by an adolescent during pregnancy might be viewed as a discrepancy between the adolescent's perceived capability to respond and the demands that she perceives are placed on her. This stress originates physically or psychologically. The conscious appraisal of a person that stress is present may be culturally influenced by personal experiences and values beliefs and traditions (Caplan, 1981; Lazarus, Averill & Opton, 1974). An adolescent girl experiencing a number of stressors may lose access to memories which help her evaluate her own identity, thus experiencing identity diffusion as described by Erickson (1963). Mastery for this adolescent is influenced by her estimation of success based on previous successes in overcoming situations of similar difficulty. Only with previous successes is the adolescent's problem solving capacity effective. Support networks are important in assisting adolescents to deal with environmental problems and in essence keep the adolescent's perceptions of her capabilities positive. Without the network support, she might have decreased ability to cope with stress (Stotland, 1969; Caplan, 1981).

**Protective Resources**

Research has shown that resources exist which appear to exert protective influences on an individual's perception of
stress and subsequent coping. Some of these resources which were included as study variables are social support which is considered a most influential external protective resource (Tilden, 1983, Barrerra, 1981, Turner et al., 1990, Dormire et al., 1989); and self-esteem (Furstenberg, 1976, 1978; Pearlin et al., 1981; Giblin et al., 1987) and mastery (Caplan, 1981; Vinovskis, 1988; Pearlin et al., 1981) which represent two of many internal resources. These two samples were chosen because of the established relationship to self concept. In a path analysis Pearlin et al.(1981) found that stress from role strain relative to certain life events(economic strain and job disruption) was more likely to result in lower self-esteem and mastery scores and subsequent depression. It was also found that "neither coping strategies nor emotional supports had any direct bearing on changes in depression independent of the sources of stress" but both did help "buttress one's sense of mastery when economic strain and job disruption were held constant" (Pearlin et al., 1981, p. 348).

Additional important milestones for the adolescents are development of ego identity, coherence, relatedness and integration into interpersonal life as necessary achievements (Smith, 1984). Personal strengths which assist adolescents in the ability to cope have been thought to be influenced by social traits which include mastery (Fine, 1973).
Self-Esteem

Self-esteem is defined as "the evaluation which an individual makes and customarily maintains with regard to himself expressed as an attitude of approval or disapproval" (Rosenberg, 1965, p.5). Self-esteem involves the judgments individuals make about self-worth. All healthy individuals strive to protect and enhance themselves (Pearlin et al., 1981). The concept of self-esteem has been widely researched relative to a variety of factors, among them age (Juhasz, 1986), social class (Rosenberg & Pearlin, 1975) and academic achievement (Byrne, 1984). Harper and Marshall (1991) report findings from a study done on the relationship between the nature and number of reported problems and self-esteem in Australian ninth graders. Four problem areas were found to be predictive of self-esteem in girls. Two of these were related to school and the others to health and physical development and home/family. In both cases lower self-esteem was found in those with higher level of problems. Longitudinal studies of self-esteem indicate that it increases with age, especially in adolescence. These increases are not necessarily linear and depend on the sex of adolescents and influences within the environment.

It appears that the self-esteem of females is more responsive to environmental issues than that of males (O'Malley & Bachman, 1983; McCarthy & Hoge, 1982). Self-esteem has been considered an essential ingredient in
effective decision making among adolescents (Hayes, 1987). Low self-esteem has been proposed as a causative factor in adolescent pregnancy and appears to be increased in adolescent mothers as compared to older mothers (Mercer, Hackley & Bostrum, 1982; Abrums, 1980). Giblin et al. (1987) assert that adolescents with low self-esteem may tend to get inadequate health care due to present access problems and less attention being to the potential benefits of health care. Efforts to improve mediating variables such as self-esteem may have an influence on multiple health behaviors. Bonaguro and Bonaguro (1987) studied the effect of self-concept on tobacco usage. It was found that cigarette usage was significantly associated with low self-esteem.

Self-esteem has been reported to lessen the influence of an adolescent's present setting and foster an enhanced perception of personal efficacy and worth. In a longitudinal study of pregnant adolescents, high self-esteem was positively associated with adolescents receiving assistance from their mothers during pregnancy and afterward (Furstenberg, 1976).

Mastery

Mastery has been defined as "the extent to which people see themselves as being in control of the forces that importantly affect their lives" (Pearlin et al., 1981, p.340). Vinovskis (1988) describes mastery as gaining control over impulses and development of insight into future consequences from current actions. Younger (1993) views
mastery as "a human response to difficult or stressful circumstances in which competency, control and dominion have been gained over the experience of stress" (p.68). Mastery is conceptualized as having four components: certainty, change, acceptance and growth, which are causally related but stand alone.

Environmental mastery has been seen as a developmental task that an adolescent must accomplish to move into adulthood. Caplan et al. (1981) describe mastery as an individual behavior that controls emotional arousal associated with stress to a tolerable level. This is accomplished by mobilizing an individual's total resources to adapt to his/her changing environment through finding alternate sources of satisfaction to replace the lost source, and thus combating environmental threat. These behaviors arise in four distinct phases which culminate in the individual coming to terms with stress after internal readjustment.

Adolescents are known to experience developmental stress during the process of maturation. When pregnancy is superimposed on developmental stressors as well as other situational stressors, the adolescent must deal with a dual developmental crisis (Sadler & Catrone, 1983). Klein (1978) hypothesizes that some adolescents who become pregnant initiate a syndrome of failure in that they are unable to complete developmental tasks or education needed to establish a vocation or to become independent. When adolescents are
from disadvantaged backgrounds, childbearing may be seen as one of the few achievable accomplishments. This perception of achievement may be short-lived due to the stress pregnancy may cause for the adolescent. Depression may arise along with social isolation and/or feelings of diminished self-esteem as the pregnancy develops and body image changes.

**Social Support**

There are various operational definitions of social support. Kahn and Antonucci (1980) describe social support as interpersonal transactions containing aid, affection, and affirmation. House and Kahn (1985) note that social support refers to a number of different aspects of social relationships. Social support is defined sometimes in terms of existence or quantity of social relationships and sometimes in terms of the structure and/or function of relationships, most often the latter. Social support is thought by House and Kahn (1985) to have stimulated research across the biomedical, behavioral, and social sciences because of the concept's integrative promise and intuitive appeal.

Caplan, Van Harrison, Wellons and French (1980) studied the effect of "social support on patient adherence". Social support was defined in terms of two components: tangible and psychological support. Tangible support is described as objective behavior which provides the patient with goods that have mass and energy (Cobb, 1976) and which is hypothesized to increase the patient's mental and physical well-being or
as subjective behavior which refers to the patient's perception and report that such resources are being provided. Objective psychological support refers to behavior which is directed toward providing a person with cognitions (values, attitudes, beliefs and perceptions). This support is aimed toward inducing affective states that are hypothesized to promote well-being (Caplan, 1980). Subjective psychological support refers to the patient's perception of the objective psychological support. Bryce et al. (1988) integrated the concepts of qualitative and quantitative support and transformed them into a measurable concept implying an assessment of the assistance of an individual's social relationships.

Social support comprises those actions which moderate the negative effects of stress and other hazards on individual health and well-being. Social support occurs within a domain, influenced by the type and quantity of social relationships and associated with the various characteristics of social support and the network of support (House & Kahn, 1985). Nuckolls et al. (1972) did a prospective correlational study on "life events occurring before and during pregnancy" and measures on "psychosocial assets" (perceived support) in 170 Army wives. The relationships between psychosocial assets, social stresses (measured by a cumulative life change score) and pregnancy outcome were examined. Neither measure was found to be significantly related to pregnancy complications. When the
variables were considered jointly, it was found that if the life change score was high before and during pregnancy, women who had low psychosocial assets were three times as likely to have complications as those who had high assets (91% compared to 31%). Since psychosocial assets were referred to as a combination of social support factors and emotional states, it would be hard to generalize this information beyond the study population.

Coletta and Gregg (1981) studied the specific effects of support on adolescent parenting behaviors. The sample consisted of 64 black adolescent mothers. The mothers who perceived the highest levels of support were more likely to report lower levels of stress.

Norbeck and Tilden (1983) designed and conducted a prospective correlational study of pregnancy complications to examine the effects of life stress, social support and emotional disequilibrium as separately measured variables in a population of middle class pregnant women who were medically normal. In the full sample of 117 women, only life stress was predictive of overall complications and emotional disequilibrium predictive of infant complications.

Characteristics of social support to pregnant women and their relationship to pregnancy outcomes are varied and have been considered in several studies. Brown (1986), Barrera (1981), and others have suggested that social support should be studied as a multidimensional construct.
Some problems arise in some of the studies which examine the effect of psychosocial factors to pregnancy outcome. One that may be significant is bias, particularly selection bias. Convenience samples were most common, and variables which could have potentially confounding effects were not controlled. A frequent problem was the generalizability to groups other than the study sample. There are a number of studies that address issues related to the origins, process and outcomes of social support to pregnant adolescents.

The presence of support from others can reduce the level of stress and affect attitudes and health behaviors of pregnant adolescents. Heins, Nance and Ferguson (1987) conducted a case-control study of 565 matched pairs of rural teenage primagravidas, with single gestations. Subjects in the study were divided into two groups, those who did and did not receive social support provided by the "Resource Mothers Program". Resource mothers were recruited and a total of six were chosen to fill the role of teacher, role model, reinforcer, friend and facilitator. Each resource mother had a caseload of 35 teens and performed monthly home visits with highly structured teaching content. The matched cases/controls were compared on several risk criteria with results indicating inadequate prenatal care in 36% of the controls as compared with 18% of the experimental subjects; 11% of cases had low birthweight babies compared to 16% of
the controls; and there was double the incidence of very low birthweight infants among the controls.

Although this study appeared to demonstrate that social support has a positive influence on pregnancy and birth outcomes, the study is flawed. Selection bias appears the strongest because level of risk for individuals at the beginning of the study was unknown. Inclusion as part of the experimental group in itself may have caused a Hawthorne effect in the case population. There was also some question in the operational definitions used to describe inadequate prenatal care. Numerous studies have arisen within the past decade to examine the effect of social support to pregnant adolescents. Some of these studies have focused on social support and subsequent health behaviors, some have focused on social support and stress, and others on social support and pregnancy outcome. Conclusions have been questionable due to the lack of statistically significant results in many of these studies. There are more reliable statistical conclusions in associating inadequate social support with adverse outcome, than adequate social support with improved outcome. It is difficult to control for confounding factors which could potentially explain a portion of the variability in outcome. Studies which have considered the adolescent's perception of support are few (Barrera, 1981; Norbeck & Tilden, 1983).

There appears to be little agreement as to what constitutes social support and what specific effects are
generated from measures of social support to pregnant adolescents. Some of the literature (Heins et al., 1987; Norbeck & Tilden, 1983) supports the idea that pregnant adolescents respond well to social support they perceive as positive and this response is manifested in a variety of behaviors and outcomes. It appears that pregnant adolescents who have low measures of social support have adverse effects on well-being in pregnancy and sometimes experience pregnancy complications (Turner et al., 1990). Received support was found by Barrera (1981) to be associated with stress levels in the pregnant adolescent. Tilden (1983) found that as social support increased, stress appeared to decrease in her study population. Ahmed (1990) found a relationship between teenage delivery and low birthweight. Dormire et al. (1989), proposes that positive outcomes of adolescent pregnancy are related to mediating factors overcoming the effect of stressors.

Overall, most of the studies which have been summarized, are not generalizable to other groups and those done on adolescents often do not consider ethnic and cultural factors, however, studies on adolescents are limited. Another problem is incidence of numerous confounding variables which were difficult to control for while maintaining an adequate size sample from which to analyze data parametrically. Even though these problems do exist, the results of these studies did show some positive effects on pregnancy outcomes women in good health. There may also
be a potential for improvement in outcomes in a high risk group such as pregnant adolescents.

**Social Support as a Buffer of Stress.** The interaction of social support and subsequent measures of stress and related outcomes has been the subject of various studies. Barrera (1981) assessed various categories and values of social support, and measured adequacy of support from a variety of people in the pregnant adolescent's social support network. He found that experienced support seemed to reflect the level of stress reported by the pregnant adolescents, and that relatives' support was often ineffective if there was conflict in the relationship.

Mercer, Ferketich, De Joseph, May and Sollid (1988) found among 593 expectant couples over age 18, that negative life events, perceived support and relationship with mothers as teenagers had direct effects on family functioning. The majority of the subjects were not adolescents, and were either married or living with a partner. Family functioning appeared to be directly affected by the participants' perceptions of the relationship with their mothers. This may have application to pregnant adolescents by implying that their future family functioning may depend on present relationships. Tilden (1983) found that in a purposive sample of 141 adult pregnant women, emotional disequilibrium in pregnancy decreased as a function of decreasing life stress and increasing social support.
Studies have been done on the effect of social support on the psychosocial status and outcome in pregnant adolescents. Turner et al. (1990) interviewed 268 pregnant teenagers throughout and following pregnancy. The significance of support by family, friends and partner assessed during pregnancy, were examined in relation to infant and maternal outcomes assessed at or after birth. Maternal outcomes related to psychological adaptation were indexed by depressive symptomology and infant outcome by birthweight, controlling for gestational age. The model used in analysis focused exclusively on the association between social support and incidence of maternal depressive symptoms. Social support was found to explain 15.4% of the variability in the incidence of maternal depressive symptomology. Dormire et al. (1989) found that affective social support fostered the adolescent mother's sensitivity to her infant's cues and decreased her parenting stress.

Giblin et al. (1987) surveyed 57 urban black pregnant adolescents regarding feelings toward pregnancy, to identify associations of specific support elements with attitudes toward pregnancy and health seeking behavior. Positive pregnancy feelings were associated with receipt of emotional support from siblings and friends, receipt of health seeking information from the adolescent's mother and the adolescent's own assessment of support.

May (1992) surveyed 31 low income pregnant adolescents on perceptions of social network characteristics as related
to help seeking experiences. Results showed that length of pregnancy was negatively correlated with network size, emotional support, tangible support and prenatal support. Younger teens reported family as being the primary support while older teens reported friends/boyfriend as giving them a higher proportion of support. The perception of less support as pregnancy increases may indicate a gap between resources present and needs.

"Through its stress buffering and direct effects, social support is believed to exert a mediating influence on maternal functioning that may positively effect the evolving mother-child relationship" (Koniak-Griffin, Lomiska & Brecht, 1993, p. 43). Since pregnant adolescents face a variety of stressors and often have less than adequate resources to assist them with coping, the impact of social support may be especially critical.

In summary, stress is a concept that has been viewed in many different ways and through a variety of models. The stimulus model developed by Holmes and Rahe (1967) was the model of concentration for this study. Critical assumptions of the model include a normative view of expenditure of adaptation, a view that tone regarding events is irrelevant, and the notion that people are passive recipients of stress. Adolescents are faced with both developmental and situational stress and require significant social and economic support to cope. Stress on adolescents who are pregnant has led to adverse outcomes more often than older populations.
Adolescents' perception of success at previous problem solving of stress appears to influence her level of mastery. Protective resources such as mastery, self-esteem and social support have been shown to affect perceptions of stress. Social support has been viewed by many as a buffer of stress. Several researchers have found this to hold true in adolescents (Turner et al., 1990; Dormire et al., 1989). Through the stress buffering effect of social support adolescent mothers have demonstrated less depressive symptomology and greater sensitivity of her infant's cues. Positive relations have been identified between self-esteem and mastery, but even more so for social support, which is seen to be especially critical for adolescents.

In light of the findings in the literature several conceptual frameworks have been developed which have tested the relationship between and/or among social support, stress, self-esteem, mastery and other concepts which lead to health behaviors. One of these theoretical models is that of Lazarus and Folkman (1984).

**Conceptual Framework**

Lazarus and Folkman (1984) proposed a transactional theory which states that the level of stress caused by an event is determined by the evaluation of individuals of the significance of that event to personal well-being. These evaluations in turn are hypothesized to influence individuals' coping patterns and responses. Coping is defined as "constantly changing cognitive and behavioral
efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a person" (p.141). The coping process may include both cognitions and behaviors and alterations as situations which are perceived as stressful change or as the demand for more resources to deal with perceived stress arises.

Appraisals as seen by Folkman, Lazarus, Gruen and DeLongis (1986) are influenced by antecedent and person situation characteristics. An encounter becomes significant to a person based on personal values, commitments and goals and beliefs about oneself. Appraisal processes are also influenced by the nature and existence of social support and by situation characteristics, such as perception of danger. There are two types of appraisals, primary: appraisal of what is at stake relative to an encounter and secondary: what can be done to prevent harm or improve the amount of benefit. An applied conceptual framework (Dormire et al., 1989) will be used to guide this study.

**Applied Conceptual Framework**

A stress adaptation model based on the transactional theory of Lazarus and Folkman (1984) was developed and tested in a study on adolescent parenting behaviors (Dormire et al., 1989). The transactional theory of psychosocial stress was used as a broad construct to conceptualize the nature of stressful transactions between the adolescent mother and other people/or environmental factors. Lazarus and Folkman had referred to these stressful transactions as
characteristically "taxing and/or exceeding" the adolescent's resources, thus threatening her well being. The conceptual representation was used in this study to assess the relationship that the presence of stressors and protective resources have on the timing of initiation into prenatal care.

**Description of the Model**

In the model adapted by Dormire et al., (1989), (Figure 1), stressors were conceptualized to be internal (developmental) or external (situational) and could be compounded (e.g. pregnancy in adolescence), thus the impact of any one stressor may be potentiated by combination with other stressors. The total resources, both internal and external in interaction with person and /or environmental factors affects the adolescent's ability to adapt to single or compound stressors in a dynamic process. In adapting, the adolescent can alter or change her external environment based on her perceptions, and can either strengthen or weaken her ability to adapt to the stressors in her environment. The stress adaptation model describes three types of stressors; developmental, situational (parenthood) and compounded (a mixture of both). These stressors are affected by mediating factors, which if positive can lead to positive pregnancy outcomes, and if negative or absent can lead to negative pregnancy outcomes.

Categories included as examples of these factors are:

1) social support which provides affirmation (appraisal and
feedback), aid (in kind and money), and affect (esteem and affection); 2) perceptions which are specifically related to stress and coping ability; and 3) personal characteristics which are individualized and affect responses to stressors. When the impact of stressors are perceived greater than the amount of mediating factors available and used, the outcome of adaptation results in negative events. These events are indicative of deficits in the ability to care for oneself and may result in entry into the health care system for intervention. Since the authors of this study are nurses, the intervention is expressed as nursing intervention. The intervention may or may not be directly related to morbidity or health seeking behaviors. Refer to Figure 1 for the conceptual framework of Dormire et al.

In summary, the transactional theory of Lazarus and Folkman served as the basis for both the author of the applied conceptual model adapted for use in this study and for the researcher to view stress and coping in the population of pregnant adolescents. The theory is based on individual appraisal of events as stressful with subsequent activation of available buffering or mediating resources to yield either a negative or positive result. The model used was developed and applied with adolescent mothers who had recently delivered (Dormire, Strauss & Clark, 1989) and was further adapted by this researcher for application to this study. Consideration of this model had led this researcher to ask certain questions regarding relationships between
health behavior (time of initiation to prenatal care) and stressful life events and/or resources which have been shown to be protective in nature, such as self-esteem, mastery and social support.
Research Questions

General Research Questions

1) Are certain factors related to the time of initiation into prenatal care by pregnant adolescents?
2) To what extent do levels of stressful life events and protective resources in pregnant adolescents correlate to the time of initiation into prenatal care?

Specific Research Questions

1) What is the relationship between selected sociodemographic factors and time of initiation into prenatal care?
2) What is the relationship between the level of perceived stressful life events and time of initiation into prenatal care?
3) What is the relationship between the level of perceived protective resources and time of initiation into prenatal care?
4) Is there any difference in demographic characteristics, stressful life events and/or protective resources reported by pregnant and non-pregnant adolescents?

Conclusion

Adolescence is described as "stress and storm" (Hall, 1904), a maturational crisis (Smith, 1984), a conclusion of childhood (Jones, 1922), and a time for compensating for developmental task deficits (De Levita, 1983). Weiss and Weiss (1989) theorize that unmet needs are expressed in substitute behaviors to attempt to get needs met. There is
little doubt that adolescents are a population who are at risk for adverse pregnancy outcomes. The literature supports the notion that there are a multitude of factors responsible for the less than ideal pregnancy outcomes so commonly experienced by adolescents.

Although there are a number of studies of developmental and situational stressors of adolescents during pregnancy, it has been difficult to isolate exact causes of adverse pregnancy outcomes such as preterm birth and low birthweight. Among these reasons is the lack of randomized studies which can be generalized to other than the original sample. Researchers have studied a variety of characteristics which have been thought to influence pregnancy outcome in adolescents, some of which are physiologic, sociodemographic, psychologic and sociologic. The emphasis has been primarily on physiologic and sociodemographic factors. Much needs to be learned about the role of psychosocial factors in causing adverse pregnancy outcomes. This literature review has focused on the determinants of adolescent development and the influence of social and environmental factorson the incidence of adolescent pregnancy and its outcomes. Factors include developmental tasks and needs, the impact of stressors, the role and interaction of protective resources such as social support and the role of social support to pregnancy outcome, and as a buffer of stress.
The significance of studying these factors in relation to pregnancy outcome is linked to economic and psychosocial costs which are precipitated by adverse outcomes and which cause significant strain on the pregnant adolescent, her family and offspring and to the community in which she lives and seeks health care. It is important to continue investigation into all the potential factors which may identify and prevent adverse outcomes. Focus may include reducing perinatal risk and inducing health behavior associated with positive pregnancy outcome.

**Gaps in the Literature**

The studies summarized in this review have contributed information regarding the influence of stress, social support, intervention and education on pregnancy outcomes of adolescents and others. This information is, however, of limited value in addressing a solution to the ever present problem of adolescent pregnancy. Many of the studies had little if any randomization and did not control for confounding variables, especially history. Additionally, many of the researcher authors chose not to discuss this important limitation to the generalizability or validity of the data. Often samples were small, one of convenience and very highly targeted, even to ethnic groups. The results and discussion appeared to imply that findings were generalizable to a broader population.

It is difficult to compare many of the studies on pregnant women that have been done on life stress and social
support because different constructs were used for each study and measurement has been at different times in pregnancy. Samples have varied greatly as to parity, race, marital, socioeconomic and risk status (Thompson, 1990).

Additional research is needed to isolate epidemiologic factors related to perinatal morbidity, and to examine interventions and education by health professionals and others in order to decrease perinatal morbidity of high risk groups such as pregnant adolescents.
CHAPTER THREE

METHODOLOGY

Overview / Research Design

The goal of this research was to identify factors (stressful life events and protective resources) which may interact to influence the time of initiation into prenatal care by pregnant adolescents aged 14-18 years. The design was a descriptive study, chosen to analyze associations between the time of an outcome (initiation of prenatal care) and occurrence of stressful life events and presence of protective resources which may have influenced the outcome. Measures of life events and protective resources were assessed and compared among two groups of adolescents, pregnant and non-pregnant. A background information form was completed as well as one instrument to measure stressful life events and three instruments to measure protective resources.

To examine the research questions posed in Chapter Two, several hypotheses were proposed. Hypotheses are stated in the null for testing purposes.

**Hypothesis H.1.0**

There will be no significant relationship between stressful life events of pregnant adolescents and the time of initiation into prenatal care. Evidence to support this hypothesis would be lack of a significant correlation between gestational weeks at initiation (GW) and stressful life
events (MLEI) scores. Evidence to refute this hypothesis would be a significant relationship between GW and MLEI scores.

**Hypothesis H.2.0**

There will be no significant relationship between protective resources of pregnant adolescents and the time of initiation into prenatal care.

2.1. There will be no significant relationship between mastery in pregnant adolescents and the time of initiation into prenatal care.

2.2. There will be no significant relationship between self-esteem in pregnant adolescents and the time of initiation into prenatal care.

2.3. There will be no significant relationship between social support in pregnant adolescents and the time of initiation into prenatal care.

Evidence to support these hypotheses would be the lack of significant correlations achieved between GW and each of the three protective resources: mastery (PMI), self-esteem (RSES) and social support (IPRI). Evidence to partially support these hypotheses would be lack of significance between GW and at least two of the three protective resources. Evidence to refute the hypotheses would consist of significant relationships between GW and all three protective resources measured.
Hypothesis H.3.0.

There will be no significant relationship between selected demographic characteristics in pregnant adolescents and the time of initiation into prenatal care. Evidence to support this hypothesis would be lack of significant correlations between GW and selected demographic characteristics. Evidence to partially support this hypothesis include significant correlations in seven or less of the 14 sociodemographic characteristics considered. Evidence to refute the hypothesis would be significant correlations between GW and greater than seven of the fourteen sociodemographic characteristics considered.

Hypothesis H.4.0

There will be no significant difference in stressful life events between pregnant and non-pregnant adolescents.

Evidence to support this hypothesis includes lack of any significance difference in MLEI scores between pregnant and non-pregnant adolescents. Evidence to refute this hypothesis would be a significant difference in MLEI between the two groups.

Hypothesis H.5.0

There will be no significant difference in protective resources between pregnant and non-pregnant adolescents.
5.2. There will be no significant difference in self-esteem between pregnant and non-pregnant adolescents.

5.3. There will be no significant difference in social support between pregnant and non-pregnant adolescents.

Evidence to support these hypotheses would be the lack of significant differences in correlations achieved between pregnant and non-pregnant groups on each of the three protective resources: mastery (PMI), self-esteem (RSES) and social support (IPRI). Evidence to partially support these hypotheses would be lack of significance between groups on at least two out of three protective resources. Evidence to refute these hypotheses would consist of significant differences between groups on all protective resources.

Definition of Variables

Dependent Variable

The dependent variable is the time of initiation into prenatal care. The current recommended schedule for prenatal care established by the ACOG (1989) is "every 4 weeks for the first 28 weeks of pregnancy, every 2-3 weeks until 36 weeks gestation and weekly thereafter". The Alan Guttmacher Institute (1985) describes care begun in the second trimester as "delayed" and in the third trimester as "late", thus, it is implied that only prenatal care begun within the first trimester is appropriate. This time period is referred to as "early" by ACOG (1985).

Those participants in the study were recorded by the gestational week in which they initiated prenatal care. A
standard gestational age calculation wheel was employed to validate gestational weeks reported by subjects. This was accomplished by taking the date that the subject stated as her due date, placing the 40 week mark on the calculation wheel at that exact date, and then taking the date of the first day of the last menstrual period (LMP) and lining the LMP mark with that date. The date on which prenatal care was initiated was read across from the gestational week counter to determine the exact gestational week (exact group). Normally, portions of a week are translated into fractions; however for the purpose of statistical analyses, they were translated into decimals to two places. In 14 cases, where either or both dates of the LMP or the initiation into prenatal care were not known (estimate group), dates were estimated at the fifteenth of the month reported by the subject. Rationale for choosing the 15th of the month was that the error would be no more than one to two weeks from the probable actual date. To ascertain whether including data from the estimate subgroup would make a difference in overall results, data analyses were conducted on the entire group and both the exact group and the estimate group to check for differences in significance levels between them.

**Independent Variables**

The independent variables were the presence of: 1) stressful life events as assessed by the LEI inventory; 2) protective resources as assessed by self-esteem scores derived from completion of Rosenberg's Self-Esteem Scale,
mastery as assessed by scores on Pearlin's Mastery Inventory and a measure of perceived social support as assessed by scores on Tilden's IPRI inventory and 3) sociodemographic characteristics as recorded on the Background Information Form (BIF).

**Operational Definition of Terms**

1. **Aged 14 to 18**-- Adolescents who are age fourteen to eighteen at the time of participation in this study.

2. **Pregnant Adolescents**-- Adolescents who have had a positive pregnancy test at the time of participation in the study. They are recruited from one of the data collection sites or from the community at large. Examples of data collection sites include: Kapiolani Teen Intervention Program, physicians' offices and clinics where permission is obtained, and pregnant adolescents in the community who are recruited by word of mouth.

3. **Sociodemographic Characteristics**-- Characteristics measured on the "Background Information Form". Examples include age, ethnicity, religion, grade, number and kind of persons the adolescent is living with and type of transportation depended on most.

4. **Stressful Life Events**-- Number of "yes" responses on the twenty-three item Modified Life Events Inventory, which includes events that have been shown to have both major and minor effects on peoples' lives (MLEI, Newton & Hunt, 1979).

5. **Protective Resources**-- These include: 1) mastery, defined as the ability to experience successful completion of
environmental tasks, assessed by Pearlin et al.'s (1981) scale of seven items; 2) self-esteem, defined as the ability to feel good about oneself, assessed by Rosenberg's (1965) Self-Esteem Scale of 10 items, and 3) perceived social support, defined as the perceptions of received support, assessed by Tilden's (1983) Interpersonal Relationship Inventory (IPRI) of 26 items with a completion form for naming network members.

6. **Initiation into Prenatal Care**-- The time in gestational weeks (GW) at which subjects begin seeking care for pregnancy.

**Application of the Conceptual Framework**

The conceptual framework of Dormire et al. (1989), was used as a basis for this study. The conceptual framework was adapted with the researcher's conceptualization of how the variables of this study would fit into the original framework (See Figure 2).

Stressors as seen in the original model were divided into three categories: developmental (adolescence), situational (parenthood) and compounded (a combination of other factors, e.g. pregnancy in adolescence). In this study the same three categories were used with the descriptor of situational changing from parenthood to both pregnancy and stressful life events.

Mediating factors were described in the original model as social support (affirmation, aid and affect), perceptions
(stress, and ability to cope) and personal characteristics. In this study, the category was changed to protective resources, and two of the three sub-categories were used with the descriptors changing somewhat. Social support was retained and, descriptors used were network size and composition in addition to aid, affirmation and affect. Perceptions as a sub-category was deleted stress was described as "stressful life events" dealing with residential mobility, relationship stressors and family illness or death and moved under the category of stressors. Rationale for this move was related to use of the MLEI to measure stressful life events. Instead of measuring perceptions of stressful life events, this modified tool was used to measure actual occurrence within the past six months of selected life events that are known to cause stress. Personal characteristics were described specifically as comprising two intrinsic resources, self-esteem and mastery.

Outcome of Adaptation was expressed in the original framework in either positive or negative terms with a self-care deficit arising from negative outcomes to result in entrance into the health care system with subsequent intervention needed. In this study, the outcome of adaptation was viewed somewhat differently. A positive outcome was early initiation into prenatal care, that is before 13 weeks of gestation (Hawaii State DOH, 1992). A negative outcome was initiation into prenatal care at a time at of after 13 weeks gestation (delayed).
The relationships which unfold in the original framework regarding entrance into the health care system do not necessarily apply in the framework of this study, however a negative outcome of delayed initiation may or may not influence entrance into the health care system with subsequent intervention.
**Instrumentation**

The Background Information Form developed by the researcher (BIF) was used to elicit data on sociodemographic and other factors which may be associated with variability in timing of initiation into prenatal care (See Appendix B). Four tools were used in the study, three assessed levels of protective resources, mastery (PMI), self-esteem (RSES), and social support (IPRI), and one assessed stressful life events occurring within the past six months (MLEI).

**Tool #1 Pearl Mastery Inventory (PMI) (Appendix B)**

Pearlin and Schooler (1978) developed a seven item assessment scale of mastery. Respondents are asked to rate themselves on a seven point Likert scale, with one representing strong agreement and seven representing strong disagreement. The higher the score the greater the assessed level of mastery.

Pearlin and Schooler's scale was used to assess the mastery levels of adults who had long-term or permanent disabilities. The internal reliability of the scale estimated by Cronbach's alpha was .71. Findings supported that those individuals with higher mastery levels reported lower levels of depression and that low mastery scores were the most powerful predictor of psychological distress (Turner & Wood, 1985). There were no studies identified validating this scale on adolescents.
Tool #2 Rosenberg Self Esteem Scale (RSES) (Appendix B)

The Rosenberg Self-esteem scale was developed as part of a large social research project in New York and has been widely used. There is support for its psychometric properties by numerous researchers. It is short and easy to complete. It contains ten items, five of which are worded positively and five of which are worded negatively. Originally a Guttman scale was used, but in the past several decades, a Likert scale has become the standard format. The positively worded items are scored from a low of one to a high of five, while for the negatively worded items, scoring is the reverse. Thus the higher the score, the higher the self-esteem. The range of scores are from ten, indicating the lowest self-esteem to 50 indicating the highest level self-esteem.

The Rosenberg scale was designed to be a global and unidimensional measurement of self-esteem. It has been used and psychometrically supported by several researchers (Westaway & Wolmarans, 1992; Murphy & Price, 1988; and Kemp & Page, 1987). There have been several factor analytic studies that have disputed the unidimensionality of the scale; however, they have exhibited a poor data fit for multidimensionality and are not consistent. Internal consistency for the 10 item scale was $r = .78$, as reported by Westaway and Wolmarans (1992) in a study on depression and self-esteem.
A study done in Philadelphia by Shapurian, Hojat and Nayerahmadi (1987) was conducted to investigate the internal consistency, reliability, concurrent validity and dimensionality of the scale. The Spearman rank-difference coefficient between the converted rank of the item-total score correlations of two samples was .79. Test-retest reliability was .84. Concurrent validity was supported. A factor analysis was done, and the median factor loading was .63. Only one factor emerged with an eigenvalue greater than unity (3.54), which accounted for approximately 70% of the total variance.

Tool #3 **Interpersonal Relationship Inventory (IPRI)** (Appendix B) The IPRI developed by Tilden (1983) over a period of seven years through various pilot drafts, has been subjected to rigorous reliability and validity assessment through administration to a wide variety of populations. The current tool underwent a process of developing and establishing psychometric credibility in the late eighties and is currently in use in numerous investigations across the United States and Canada (Tilden, Nelson & May, 1990). The tool consists of 26 statements that describe close personal relationships. The subject is asked to rate how the statements fit their situation by marking an X in a box following the statement. Responses are given by completing a Likert scale with five categories strongly agree, agree, neutral, disagree and strongly disagree. A nominal score of one to five was earned for each answer.
"Test-retest reliability was .91 for support, .84 for reciprocity, and .81 for conflict" (Tilden, Nelson & May, 1990, p.338). Internal consistency subscales for the IPRI ranged from .82-.91". Intercorrelations of social support, reciprocity and conflict were inspected for groups separately and together and t-tests were used to assess the magnitude of differences of IPRI subscales between groups" (Tilden et al., 1990, p. 340). All differences were significant at p <.0002, thus exhibiting evidence of construct validity in discriminating the two groups. Construct validity of the support and conflict scales was supported.

This inventory was pilot tested in a number of different samples and its internal consistency was found to be above .80. It is a relatively new tool, thus, there are rare articles citing its use. One article was found in a Scandinavian journal reporting that the tool had been used but no psychometrics were included on the reliability and validity of the tool were included in the abstract. Otherwise further uses of this tool have been limited to researchers who have not yet published results.

Tool #4 Modified Life Events Inventory (MLEI) (Appendix B). Newton et al., developed and later modified a life events inventory for pregnancy, thus calling it the Modified Life Events Inventory. It has been used in two separate sample populations and has been found to have reliability of .80. It was tested primarily on adults, thus, the wording may be difficult for adolescents to understand unless
paraphrased. The original tool called for subjects to rate each of 66 items on a scale of 1 to 100 based on the amount of "worry, disruption or upheaval the event would cause were it to happen" (Newton et al., 1979, p. 411). The inventory was viewed by this researcher as too lengthy and difficult for adolescents to complete. However the items (events) listed were deemed of high value in assessing the occurrence of stress. Thus this researcher modified the inventory by using modifications of twenty of the original items, rewording the statements so adolescents could easily understand them. During pilot testing of the instrument in a group of five non-pregnant adolescents, all of them marked between 90 and 100 for all of the stress items. Since there was a lack of variability, the researcher chose to modify the instrument to a forced choice style. Participants were asked to indicate by marking over the Y if that event did happen to them and over the N if that event did not happen to them. Each item was scored as one point if it did occur, with the exception of those stipulated by Newton as "major life events" which were scored two points each if they occurred. The minimum score was zero and the maximum score 35, with 11 items having a weight of one and 12 items a weight of two.

**Sample**

The study sample consisted of female adolescents aged 14-18 years, who reported being either pregnant or non-pregnant and who resided in the state of Hawaii on the island
of Oahu. Participants were recruited at clinics, doctors' offices, schools and in the community at large.

Data collection sites were chosen to provide as representative a sample of adolescents on Oahu as possible. Among them, Kapiolani Medical Center for Women and Children (KMCWC) located in central Honolulu serves as a tertiary care center and receives referrals of high risk on Oahu. It also serves the West Oahu population at a Pali Momi satellite in Pearlridge, Kaiser Moanalua Clinic (KM) on the campus of Kaiser Foundation Hospital-Moanalua, serving Pearlridge/Pearl City, Kaiser Leeward Clinic (Punawai) (KL) serving Waipahu and other parts of West Oahu, and Waimanalo Health Clinic (WHC) serving Windward Oahu. The data collected was intended to provide assistance to plan programs which would meet the needs of those at highest risk and will be shared with the Department of Health, Maternal-Child Division.

Every female adolescent aged 14-18 years who was present at each data collection site was invited to participate in the study. Criteria for inclusion of the study were:

Group #1 --- Non-pregnant adolescents

1. Age 14-18 years.

2. Enrollment as a student in the high school selected as a study site.

3. Originating from the community, recruited at a local shopping mall.

4. Able to read and understand the informed consent for the study and the study instruments.
The purpose of inclusion of Group #1 is to validate the four tools chosen to measure resources and stress, to determine the baseline level of resources and stress which are present in a cohort group of non-pregnant adolescent girls. Thus, Group #1 was viewed as the "control" group as they did not experience the stimulus of pregnancy as did Group #2.

Group #2--- Pregnant Adolescents

1. Adolescents who report being pregnant on or prior to the day in which they complete the surveys. The purpose of inclusion of this sample population is to collect data related to stressors and resources at different times in pregnancy to assess the stability of both variables over time and if the perceptions regarding levels of stressors and resources are different in adolescents who have initiated care at varying intervals from the time of the study.

2. Age 14-18 years at the time of the interview.

3. Enrollment for care in one of the sites which will be used for data collection: Kapiolani Medical Center Teen Intervention Program, Pali Momi Teen Prenatal Classes; Kaiser Moanalua and Leeward Clinics; Waimanalo Health Clinic; the offices of three obstetricians in the Windward area; two local area high schools; and the community at large. Those who are recruited from the community must be enrolled in prenatal care somewhere.

4. Able to read and understand the informed consent for the study and the study instruments.
Sampling Procedure and Sample Size

All those adolescents who met the inclusion criteria were invited to participate until approximately fifty subjects each in group # 1 and group # 2 were obtained. Sampling continued until each group reached its quota. After all the data were collected, the researcher reviewed the survey packets for completeness. It was found that there were a total of 23 pieces of missing data. Data were excluded for three participants, one did not fit the age criteria and two who could not furnish needed information.

Group #1 was obtained from several health classes in the school study sites. The teachers of the health classes were asked to use time from classes to ask students to complete the four inventories and information form. A script was read initially by the researcher and assistants (Appendix D) to elicit participation. This was done for the purpose of assuring interrater reliability for recruiting participants and obtaining consistent information about informed consent.

All those females, aged 14-18 years, who were non-pregnant were requested by their teacher to get permission slips signed by parents the day before the researcher came and on the day of data collection. Those who brought in slips were eligible to be in the study. Students were then read the script and if they chose to participate, signed the consent form and completed the study. After the adolescent students completed the study, everyone in the class wrote their name on a small piece of paper. The papers were then
deposited in a box and several food gift certificates were given to those whose names were drawn. Other subjects were recruited from the community by a research assistant.

For Group #2 the researcher enlisted volunteers while they waited for a prenatal visit, after a childbirth or parenting class, or in the community at large.

For example, the greatest number of teens were seen at KMCWC where approximately 10 new pregnant teens are seen each month along with 20 repeat visits (estimated by KMCWC social worker). Thus, the maximum sample possible would be 30 in one month. It was estimated that twenty-four (20%) of the possible sample could have been enlisted in the data collection period of four months. In actuality 25 of the 54 subjects were recruited at Kapiolani. The researcher received a schedule of times when teens would be at Teen Intervention Classes at Kapiolani and or Pali Momi and she contacted the program co-ordinator to obtain permission to come and recruit participants. Participants would stay after class and fill out the survey forms. Nine participants were recruited at private physician's offices. Nurses from the physician's offices were give study inclusion criteria and would notify the researcher in advance the times when adolescents who fit the criteria were scheduled for office visits. The researcher or assistant waited in the office and contacted the adolescent as she arrived to elicit participation. Thirteen were recruited at clinic sites, the majority being from both the Kaiser clinics. The researcher
gave inservices to selected nursing staff who could then assist with data collection when the researcher was unavailable. The remaining seven were contacted by research assistants in the community at a local mall and asked to participate. It was estimated that the sample size collected would be adequate to show an association.

Setting

The island of Oahu was the setting for data collection. Approximately 80% of pregnant adolescents (aged 14-19) in Hawaii (n=2111) are on Oahu. There are various sites at which pregnant adolescents may seek prenatal care. There are three hospital based clinics, various other clinics and approximately fifty private physicians’ offices.

The study took place either 1) in a classroom at a local high school, or 2) in the waiting area or vacant exam room in one of several prenatal clinics or doctors’ offices, or 3) in the community at large.

High School Sites

The high school sites consisted of two high schools in the Windward District of the City and County of Oahu: Kailua High School and Kalaheo High School.

Prenatal Sites

A = Kapiolani Teen Intervention Program is part of the Kapiolani Medical Center for Women and Children (KMCWC) and serves pregnant adolescents from the whole island of Oahu.
B = Kaiser Moanalua and Leeward Clinics are a part of the Kaiser Foundation Health Care System which is an HMO serving a designated membership.

C = Waimanalo Health Clinic is a private, community health center that serves the Windward Coast of Oahu.

D = The office of three obstetricians practicing on the Windward Coast of Oahu, whose patients give birth at Castle Medical Center or Kapiolani Medical Center.

Protection of the Rights of Human Subjects

The study was presented to and approved by the University of Hawaii Committee on Human Subjects (UHCHS). Letters of approval from UHCHS, Dept. of Education, school principals, program coordinators and institutional review boards follow in Appendix C.

Subjects were assured of confidentiality. Names did not appear on any survey instruments, only on the consent form and cover sheet, which were kept under lock and key separate from the completed instruments. Each subject was assigned the number which appeared on the survey packet. Tools were numbered 1-100 and used in no particular order. All packets were placed in a data collection box after completion and the researcher did not look at them until preparation for data entry was being made. A statistician entered and performed statistical procedures on the data as directed by the researcher, after which the surveys were returned in the original box for storage.
After the results were tabulated, all identifying material was sealed in two envelopes, one marked "Yes" and one marked "No", relative to permission granted or not by the adolescent on the cover sheet for follow-up. Those refusing follow-up were placed in the "No" envelope and will be kept for one year from the time of data analysis and then destroyed. Those who consented to follow-up were placed in the envelope marked "Yes" and may be followed up by the researcher at a later time to assess the incidence of perinatal/neonatal morbidity.

The subjects were told that the research was being done to assess the needs of pregnant adolescents with the hope that information could be shared with those planning programs for the State of Hawaii with the hope that the information would be considered in future program planning. Since the subjects were adolescents, time was taken (approximately 5 minutes) to explain to content of the consent form and to assure the adolescent she did not have to participate unless she chose to.

The subject was required to understand the consent form in order to participate in the study. Thus, an oral explanation of the consent was given as well as encouragement for participants to read the form before signing it. The consent consists of a written description of the subject's role of participation in the study and a statement of understanding of the content and intent to participate. If
the participant did not sign the consent they could not participate in the study (Appendix A).

**Data Collection**

**Research Assistant Selection and Training**

The selection of research assistants was made as soon as approval from the Committee on Human Subjects was received March 30, 1993. Since the researcher is a blond caucasian, she decided to recruit two Hawaiian/Part Hawaiian assistants. Research assistants signed a contract to collect data at least six hours/week for the months of April and May. A training session was held at which they were both given a script and practiced delivery in the presence of the researcher. They were also instructed in filling out the data collection tabulation sheet which they returned to the researcher for renumeration. They were paid per person regardless of whether the contact agreed or refused to participate in the study. They were also given a gas allowance per day even if they did not collect any data.

Adolescents were given the option of completing the background information sheet or of being asked some questions while the researcher or assistant completed the form. Most of the participants requested to complete the forms themselves. Thus, the only aspect of data collection which was checked by the researcher for reliability was the manner of oral explanation from the script and the signing of the consent before filling out the surveys. In both cases, the assistants read the script and followed it as specified.
One assistant was eighteen years old, pregnant, and in high school completing twelfth grade in June. One assistant was a thirty-four year old housewife who collected data on the Windward coast. The researcher collected all data at KMCWC. Inservice training was given to Kaiser nursing staff at the clinics in Moanalua and Waipahu so they could assist with data collection when the researcher was unavailable. The same script was used for all persons who would recruit adolescents. The surveys took an average of twenty minutes for the subjects to complete.

Data Analysis

Power analysis was not used to estimate desired sample size due to lack of randomization of sample. Since a convenience sample was used, calculations were made based on the plan for analysis of data and the nature of variables to be analyzed. Analysis consisted of frequency distributions for all study variables. Correlational analyses were done between variables and selected demographic variables of continuous nature that were categorized as either ordinal, interval or ratio. Time of initiation, the dependent variable, was treated as a continuous variable in completed gestational weeks of pregnancy (using Naegle's rule) at that point in time. Naegle's rule consists of taking the first day of the last menstrual period to calculate an expected due date (EDD), by counting back three months and adding seven days (Williams, 1989). Correlational analyses were completed on gestational weeks and instruments, sociodemographic
characteristics and subgroups of the pregnant sub-group, the exact and estimate groups, and the early and delayed groups using the Pearson r statistic, chi square and t-test analyses. Differences in demographic variables that are categorical in nature were expressed in cross tabulation tables and chi square analysis.

Comparisons of pregnant versus non-pregnant group on independent variable scores and demographic variables that were nominal in nature were done by using t-test analysis. Comparison of categorical demographic variables were expressed in cross tabulation tables and chi square analysis.

Limitations

The limitations of this study included a limited sample size, and no attempt to generalize beyond the study population was made, however, information was learned which added to the body of knowledge regarding adolescent resources, stressors and health behaviors. This information has the potential to influence decisions regarding health promotion and intervention to adolescents.

There are some variables which may have been confounding to the data collection and analysis. These were conditions whose existence were acknowledged but there was limited information recorded related to them. These items could have had potentially significant effects on the levels of stress and resources felt by the adolescent. Some examples of potential confounding variables are: Planned versus unplanned pregnancy, maternal morbidities existing prior to
pregnancy, religious and cultural beliefs, family structure and systems functioning.

There are some items which were recorded on a Background Information Form (see Appendix B) for the purpose of item analysis. These items were taken from the background information form used by the Kapiolani Teen Intervention Program. These include: age, grade, ethnicity, religion, health insurance, origin of money, transportation depended on most, family composition and size and number of persons in support network. This are only a sampling of items which may be correlated to time of initiation and or measurements of stressful life events and/or protective resources. Due to the need for parental consent in the non-pregnant adolescents, certain sensitive questions regarding sexual and reproductive history were not asked of the non-pregnant group. This limitation prevented a comparison of data in those categories between pregnant and non-pregnant groups.

The pregnant group were asked items which related to sexual and reproductive history and the current pregnancy as well. These items included: age of onset of sexual activity, age first used birth control, type and frequency of birth control use, age at first pregnancy, number of pregnancies and abortions, how this pregnancy happened, when decision made to keep pregnancy, who influenced most to keep pregnancy and level of completed education of baby's father, and adolescent's mother.
Summary

This was a descriptive study, cross sectional in design, which included measurement of the incidence of stressful life events reported by pregnant adolescents and levels of selected protective resources present as correlated with the time of initiation into prenatal care. Samples included all pregnant adolescents who presented for prenatal care at study sites and those from the community at large, who volunteered to be in the study and signed an informed consent.

A quasi-control group to assess stability of the research instruments included non-pregnant adolescents in health classes whose parents gave written consent and who volunteered and consented in the same manner as the pregnant sample. Participants were asked to complete a background information sheet and four tools which were designed to measure the independent variables of perceived stress and protective resources. Reliability and validity in two survey instruments (RSES and IPRI) used has been established in adolescents with acceptable internal consistency greater than .80 and the other two have been used in adults with an internal consistency score greater than .80. The life events inventory was modified by the researcher and pilot tested, then remodeled. Written consent was obtained from the participants, and agencies where data collection took place. Participant rights were protected. No identifying information was on any of the surveys except for an assigned number. Identifying information was kept confidential under
lock and key. Data was analyzed to infer association between stress and resource levels present and variability in time of initiation into prenatal care.
CHAPTER FOUR
ANALYSIS OF DATA

Overview

The purpose of this study was to investigate the relationship among stressful life events and the protective resources of mastery, self-esteem and social support to time of initiation into prenatal care by pregnant adolescents aged 14-18 residing in Hawaii. The researcher administered a background information form, the Modified Life Events Inventory (MLEI), the Pearlin Mastery Inventory (PMI), the Rosenberg Self-Esteem Scale (RSES) and the Interpersonal Relationship Inventory (IPRI) to 106 adolescents.

Three subjects had to be dropped due to age (one was 13 years old) and inadequate data (inability to estimate gestation weeks of pregnancy). The remainder of the pregnant subjects were divided into two sub-groups based on whether they were able to report exact dates of initiation into prenatal care (exact group) and those who were able to report only the month but unable to report one or both exact dates, thus dates were estimated by the researcher using methods described in Chapter Three (estimate group).

The total sample (103) was made up of two sub-groups, 54 (52.0%) pregnant and 49 (48.0%) non-pregnant adolescents. The non-pregnant adolescents were recruited primarily from high school health classes which were made available to the researcher. These subjects consisted primarily of tenth graders, while the pregnant adolescents were recruited from
various locations in the community and consisted primarily of twelfth graders.

The tools were not completed fully by 15 (14.6%) of the study sample. Missing data occurred on 23 inventories or background information forms. The MLEI and the background information form had greater incidences of missing data. The data that were missing were most often related to relationship problems with boyfriend. It is conceivable that some of the sample did not have a boyfriend at the time they completed the instruments or within the past six months. Six (5.8%) of the subjects were 14 years old and may have been in this category. There were three incidences of an inventory not filled out at all and two incidences of subjects not following directions. Eight (7.8%) sets had two different instruments with one piece of missing data. Some of the subjects were slower filling out the surveys than friends they were with and handed them in incomplete. Others appeared to fail to answer one item on the MLEI because it was sensitive for them, such as the questions asking if they had experienced abuse. As the MLEI asked information of a more personal and sensitive nature, it was the most common tool which was not completed. Specific numbers of missing cases will be noted in the body of the chapter where appropriate.

For the total sample, frequencies and percentages were computed, as well as measures of central tendency where appropriate. Internal consistency reliability analysis
(Cronbach's alpha) was conducted on all study instruments. Differences in responses to the demographic, stressful life event and protective resource sections were determined between pregnant and non-pregnant adolescents using a t-test or a one-way analysis of variance (ANOVA). To determine the relationship between independent variables and the initiation of prenatal care correlational analyses were conducted using the Pearson r statistic.

Sample Characteristics

The mean age for the total group was 16.4 years of age with a standard deviation of 1.23. When the group was divided into subgroups, the group of pregnant adolescents ranged in age from 14 years to 18 years, with a mean age of 16.9 years (S.D. = 1.12). The age of the non-pregnant adolescents also ranged from 14 to 18 years; however the mean age of this group was 15.9 years (S.D. = 1.17). Analysis using a t-test yielded a t value of 4.17 (p = .000). Thus, there existed a significant difference between groups in age; however, the age of all participants was within one standard deviation of the mean age for the total group and each of the sub-groups was also within one standard deviation of each other. Data were missing from seven cases.

Sociodemographic characteristics were divided into two categories, those related to demographics and those related to social characteristics. Choices were listed with spaces before each item for the subjects to check those applicable.
Demographic items considered ethnicity, religion, marital status, grade and health insurance.

Ethnicity was divided into five categories. The total sample consisted of 50 (48.5%) Hawaiian/Pt. Hawaiian, 26 (25.2%) were Pacific Islanders and the remainder, n=24 (23.3%) included Caucasian, Asian and Other. When pregnant and non-pregnant sub-groups were considered, the majority of both, pregnant 30 (55.6%) and non-pregnant subjects 20 (40.8%), reported Hawaiian/Part Hawaiian ethnicity, followed by Pacific Island, pregnant, 12 (22.2%) and 14 (28.6%) for non-pregnant adolescents. The remainder of the pregnant sample 11(20.4%) and 13 (26.4%) of the non-pregnant sample consisting of Other ethnicities such as Caucasian and Asian. There was no significant difference in ethnicity among either the total or both subgroups. There was one case in the pregnant group and two in the non-pregnant group with missing data on this item. See Table 1 for specific distribution of ethnicities.

Religion was divided primarily into four categories. The religions most reported by the total group was Christian, 27(26.2%); Catholic, 17(16.5%); and Mormon, 10 (9.7%). The remainder either did not specify any religion or were undecided. When sub-groups were considered, the majority of pregnant adolescents did not specify a particular religion, 24 (44.4%) or specified Catholic religion as the choice, 14 (25.9%), with the remainder, 16 (30.1%) divided between Christian, Mormon and others. In the non-pregnant group, the
majority reported being Christian, 22 (44.9%), with the rest divided between Mormon and Catholic. Using chi square analysis, there was a significant difference in religion between the pregnant and non-pregnant groups, chi square = 30.43 (p=.00). This finding was related to the large number of pregnant adolescents who did not specify a choice of religion (44.4%). Table 1 presents data on religious preference.

The majority of the total group, as well as the pregnant, 50 (92.6%) and non-pregnant, 49 (100%) sub-groups reported single marital status. There was only one occurrence of missing data on marital status and no significant difference noted between groups.

The mean grade level of the total group was the eleventh grade (S.D. = 1.02). The pregnant subjects were primarily in 12th grade or just having finished it, 35 (64.8%) and the non-pregnant group were mostly in the tenth grade, 27 (69.2%). There were 14 pregnant subjects and 10 non-pregnant subjects that had missing grade data on the background information forms. The place to enter grade was more prominently displayed on the non-pregnant background form than the pregnant form, however there were about equal numbers who neglected to complete that question. Using t-test analysis a significant difference was shown, t = 3.87, (p=.00). This was related primarily to the significant difference in age between the pregnant and non-pregnant groups. Even though the difference was significant, it was
still within one standard deviation for the total and both subgroups.
Table 1
Selected Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total Group</th>
<th>Pregnant</th>
<th>Non-Pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHNICITY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaiian/Pt.H</td>
<td>Freq. 50</td>
<td>Percent 48.5</td>
<td>Freq. 30</td>
</tr>
<tr>
<td>Caucasian</td>
<td>Freq. 8</td>
<td>Percent 7.8</td>
<td>Freq. 3</td>
</tr>
<tr>
<td>Asian</td>
<td>Freq. 9</td>
<td>Percent 8.7</td>
<td>Freq. 6</td>
</tr>
<tr>
<td>Pacific Island</td>
<td>Freq. 26</td>
<td>Percent 25.2</td>
<td>Freq. 12</td>
</tr>
<tr>
<td>Other</td>
<td>Freq. 7</td>
<td>Percent 6.8</td>
<td>Freq. 2</td>
</tr>
<tr>
<td></td>
<td>n=100</td>
<td>n=53</td>
<td>n=47</td>
</tr>
<tr>
<td>RELIGION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>Freq. 27</td>
<td>Percent 26.2</td>
<td>Freq. 5</td>
</tr>
<tr>
<td>Catholic</td>
<td>Freq. 17</td>
<td>Percent 16.5</td>
<td>Freq. 14</td>
</tr>
<tr>
<td>Mormon</td>
<td>Freq. 10</td>
<td>Percent 9.7</td>
<td>Freq. 4</td>
</tr>
<tr>
<td>Other</td>
<td>Freq. 18</td>
<td>Percent 16.9</td>
<td>Freq. 7</td>
</tr>
<tr>
<td>None specified</td>
<td>Freq. 31</td>
<td>Percent 30.1</td>
<td>Freq. 24</td>
</tr>
<tr>
<td></td>
<td>n=103</td>
<td>n=54</td>
<td>n=49</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>Freq. 99</td>
<td>Percent 97.1</td>
<td>Freq. 50</td>
</tr>
<tr>
<td>Married</td>
<td>Freq. 3</td>
<td>Percent 2.9</td>
<td>Freq. 3</td>
</tr>
<tr>
<td></td>
<td>n=102</td>
<td>n=53</td>
<td>n=49</td>
</tr>
</tbody>
</table>
Type of insurance reported by subjects in the total group, 50 (48.5%) and both sub-groups, pregnant subjects, 23 (42.6%) and non-pregnant subjects, 27 (55.1%) was most commonly that of Hawaii Medical Service Association (HMSA). Both groups had the same amount of subjects that reported having Kaiser Insurance, 11 (22.4%). One difference noted was a higher proportion of pregnant subjects who had Medicaid, 11 (20.4%) versus the non-pregnant subjects 1 (2%). In a chi square analysis significance was shown, chi square = 11.84 (p = .03). This finding was related to the fact that nearly one quarter of the pregnant girls reported having Medicaid, while the non-pregnant girls could not qualify for it. There were no incidences in either group of missing data on this item.

In the category of social characteristics (See Table 2), items considered included living status (who the adolescent lives with), number of persons in the adolescent’s home, number of people in her social network, the origin of the money she has and the mode of transportation she depends on most. Regarding living status, the total group reported living primarily in a two parent family, 37 (38.9%) or a single mother headed household, 24 (25.3%). The non-pregnant subjects were more likely to live with both parents, 25 (51%), with the remainder living in a single mother headed household, 8 (16.3%) or other situations, 13 (26.5%). Only 1 (2%), lived with a boyfriend, while pregnant subjects were equally likely to live in a single mother headed household,
16 (29.6%), as both parents, 12 (22.2%) or a boyfriend, 10 (18.5%). A significant difference was shown between groups on living status, chi square=17.3 (p=.00). The rationale for this finding was the greater proportion of non-pregnant adolescents living in a two parent family, 51 versus 22 % of the pregnant subjects and a greater proportion of pregnant subjects (19.0%) than non-pregnant subjects (2.0%) living with a boyfriend.

The majority of the total group, 54 (52.5%) and both sub-groups, 24 (44.5%) of the pregnant group, and 30 (61.25%) of the non-pregnant group reported living in a home with between four and six people. Sixteen (29.7%) of pregnant subjects and four (8.2%) of non-pregnant subjects reported living in a home with less than four people. There were six pregnant and two non-pregnant subjects with missing data. There was no significant difference noted on number of people living at home. Table 2 presents specific data related to kind and number of persons the adolescent resides with at home.

The study sample was asked to "list the people who are important to you, using only first names or initials. For each person, state their relationship to you" (Tilden, 1983). The total group reported a mean of 8.5 persons in the network. The majority of pregnant subjects, 37 (50.1%), reported having four to nine supportive persons in the network. The non-pregnant adolescents reported more of a spread in the numbers of supportive persons, with the
category of one to three persons representing the largest percent of the sample, 8 (16.3%). There were three pregnant and six non-pregnant subjects with missing data on this item. There was no significant difference in number of supportive relationships.

Two items were asked related to the origin of money and the mode of transportation depended on most. The researcher included questions about origin of money and transportation depended upon most, to see if they would have a significant correlation with time of initiation, the rationale was that if adolescents had no reliable transportation and no source of money, they might initiate later. There was no significant relationship identified between these two questions and time of initiation. Although the adolescents were instructed to check only one item, some checked more than one, thus the cumulative response tallies and percentages for both those questions did not equal one hundred. One reason for this might be that all subjects identified a regular source of transportation, the bus and their boyfriend each accounted for one third of their rides with the remainder divided among various family members and friends. All the subjects also identified a regular source of money. One subject wrote in an answer "around" to the question "where do you get your money?". Non-pregnant subjects were more likely to say they got money from their friends than pregnant subjects. This seems understandable as less of the non-pregnant group reporting earning or getting
regular monthly income. Even though the question asked for which type do you depend on most, many subjects checked several different answers, so results should be interpreted with caution because they do not add up to 100. There were no missing data for these items. The majority of both groups, the pregnant group, 27 (50.0%) and the non-pregnant group, 30 (61.2%) reported getting money from parents. A greater proportion of the non-pregnant group, 14 (28.6%) earned money from working than the pregnant group 10 (18.5%), and greater proportion of the pregnant group obtained money from boyfriends, 20 (37%) versus the non-pregnant group, 10 (20.4%).

For transportation, the question asked "which type of transportation do you depend on most". Forty (38.8%) of the total group and both sub-groups depended on the bus most frequently, pregnant, 18 (33.3%) and non-pregnant, 22 (44.9%), than rides from family, pregnant, 17 (31.5%) and non-pregnant, 23 (38.8%). There were no incidences of missing data in either group on this item. There was no significant difference in transportation most depended on. Table 2 presents distributions of these data.
Table 2
Social Characteristics of the Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total Group</th>
<th>Pregnant</th>
<th>Non-Pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq. Percent</td>
<td>Freq. Percent</td>
<td>Freq. Percent</td>
</tr>
<tr>
<td>Living status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother/sibs</td>
<td>24</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Parents/sibs</td>
<td>37</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Boyfriend</td>
<td>11</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Mother/step</td>
<td>6</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
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<td>n=95</td>
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<td>n=47</td>
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<td></td>
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</tr>
<tr>
<td># persons at home</td>
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<tr>
<td>less than</td>
<td>20</td>
<td>16</td>
<td>4</td>
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<tr>
<td>four</td>
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<td></td>
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</tr>
<tr>
<td>four to six</td>
<td>54</td>
<td>24</td>
<td>30</td>
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<tr>
<td>seven to ten</td>
<td>15</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>&gt; ten</td>
<td>4</td>
<td>2</td>
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<td>13</td>
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<tr>
<td>7-9</td>
<td>18</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>10-12</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>&gt; 12</td>
<td>18</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>n=94</td>
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Table 2 (continued)

Social Characteristics of the Sample

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<tr>
<th>Origin /money</th>
<th>Total Group</th>
<th>Pregnant</th>
<th>Non-pregnant</th>
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<tr>
<td></td>
<td>Freq</td>
<td>Percent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Myself</td>
<td>24</td>
<td>23.3</td>
<td>10</td>
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<td>Parents</td>
<td>57</td>
<td>55.3</td>
<td>27</td>
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<td>Boyfriend</td>
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<td>29.1</td>
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<tr>
<td>Friends</td>
<td>3</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>Boyfr, family</td>
<td>3</td>
<td>2.9</td>
<td>2</td>
</tr>
<tr>
<td>Other relative</td>
<td>9</td>
<td>8.7</td>
<td>2</td>
</tr>
<tr>
<td>Welfare</td>
<td>11</td>
<td>10.7</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>5.8</td>
<td>3</td>
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</table>

n=133 n=54 n=49

TRANSPORTAT.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Total Group</th>
<th>Pregnant</th>
<th>Non-pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq</td>
<td>Percent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Bus</td>
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<td>38.8</td>
<td>18</td>
</tr>
<tr>
<td>Own car</td>
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<td>15.5</td>
<td>10</td>
</tr>
<tr>
<td>Boyfriend car</td>
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<td>26.2</td>
<td>18</td>
</tr>
<tr>
<td>Rides/family</td>
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<td>17</td>
</tr>
<tr>
<td>Rides/friends</td>
<td>27</td>
<td>26.2</td>
<td>8</td>
</tr>
<tr>
<td>Walk</td>
<td>13</td>
<td>12.6</td>
<td>2</td>
</tr>
<tr>
<td>Other/Unspecif</td>
<td>4</td>
<td>3.9</td>
<td>2</td>
</tr>
</tbody>
</table>

n=167 n=54 n=49
There were certain questions asked of the pregnant group which were not asked to the non-pregnant group. These were primary regarding sexual and reproductive history. Since parental consent was required by the school district prior to having the subjects complete the study instruments, it was decided to omit this information, anticipating that parents might not approve and an adequate sample of non-pregnant adolescents would not be obtained. The main reason for recruitment of the non-pregnant group was to compare scores on independent variables to see if pregnancy made a difference in scores. The questions related to: 1) age of first sexual intercourse, 2) age of first birth control use, type and frequency, 3) number of pregnancies and 4) abortions, 5) etiology of current pregnancy, 6) when decision was made to keep the pregnancy 7) person who influenced you most to keep the pregnancy and 8) whether or not enrolled in a teen pregnancy program.

Forty-two subjects (77.7%) reported the age of first sexual intercourse as having occurred between the ages of fourteen to sixteen. Eight subjects (14.9%) reported having intercourse first at of before age 13, and the remainder of the subjects, 3 (5.6%) reported first intercourse at age seventeen. There was one subject with missing data.

Thirty (55.6%) of the subjects reported their first use of birth control occurring from age 14-16, with two (3.8%) subjects reporting age below 14 and 4 (7.4%) subjects reporting age older than sixteen. The number of responses to
the birth control question (n=35) was less than any other question asked on the information form. Nineteen subjects had missing data.

Type of birth control used was equally divided primarily between the pill, reported by 13 (24.1%) and foam and condoms reported by 13 (24.1%), yet 9 (16.0%) of the subjects reported using no birth control. Frequency of birth control was evenly distributed between "always", reported by 10 (18.5%), "some of the time", reported by 10 (18.5%) and "never", 11(20.4%). There was one subject with missing data regarding type of birth control and seven subjects with missing data on the frequency of birth control question. Table 3 shows frequencies for type and frequency of birth control.

Most of the pregnant group were experiencing a first pregnancy, 38 (70.4%), with approximately one quarter, 14 (25.9%) having previously given birth. There were two missing cases on these data. Eight out of 50 subjects (14.8%) reported having had an abortion. There were four pieces of missing data on this item.

Subjects were asked about how the current pregnancy happened. Three choices were given 1) trying to get pregnant, 2) not trying to get pregnant, birth control failed or 3) neither trying or not trying, it just happened. The majority of subjects reported that it just happened, 39 (72.2%), with birth control failure the second most chosen response, 9 (16.7%) and trying to get pregnant reported by
six (11.1%) of the subjects. There were no incidences of missing data on this question.

The majority of respondents, 30 (55.6%) reported deciding to keep the current pregnancy as soon as they found out or within a month afterward, 10 (18.5%). There were four subjects with missing data on the question of decision to keep the pregnancy. Table 3 presents these data.

Responses regarding who influenced them most to keep the pregnancy were relatively evenly distributed among boyfriend, 17 (31.5%), family, 15 (27.8%) and a combination, 16 (29.6%). Two subjects had missing data on the question of who influenced the her most to keep the pregnancy. See Table 3 for distributions and frequencies.
Table 3  
Background Characteristics of Pregnant Adolescents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth Control Type</td>
<td>n=40</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>9</td>
<td>16.7</td>
</tr>
<tr>
<td>Pill</td>
<td>13</td>
<td>24.1</td>
</tr>
<tr>
<td>Foam/Condoms</td>
<td>13</td>
<td>24.1</td>
</tr>
<tr>
<td>Combination</td>
<td>5</td>
<td>9.3</td>
</tr>
<tr>
<td>Freq.Birth Control</td>
<td>n=47</td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>10</td>
<td>18.5</td>
</tr>
<tr>
<td>Most times</td>
<td>9</td>
<td>16.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>10</td>
<td>18.5</td>
</tr>
<tr>
<td>Rarely</td>
<td>7</td>
<td>13.0</td>
</tr>
<tr>
<td>Never</td>
<td>11</td>
<td>20.4</td>
</tr>
<tr>
<td>Decide to keep pregnancy</td>
<td>n=50</td>
<td></td>
</tr>
<tr>
<td>As soon as I found out</td>
<td>30</td>
<td>55.6</td>
</tr>
<tr>
<td>A month after</td>
<td>10</td>
<td>18.5</td>
</tr>
<tr>
<td>2 months after</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>3 months after</td>
<td>5</td>
<td>9.3</td>
</tr>
<tr>
<td>4 months or more</td>
<td>2</td>
<td>3.7</td>
</tr>
</tbody>
</table>
Table 3 (cont.)

Background Characteristics of Pregnant Adolescents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence to keep pregnancy n=52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boyfriend</td>
<td>17</td>
<td>31.5</td>
</tr>
<tr>
<td>Myself</td>
<td>4</td>
<td>7.4</td>
</tr>
<tr>
<td>Family</td>
<td>15</td>
<td>27.8</td>
</tr>
<tr>
<td>Combination</td>
<td>16</td>
<td>29.6</td>
</tr>
</tbody>
</table>

Subjects were asked whether they were enrolled in a school teen pregnancy program during this pregnancy. The majority of the sample, 28 (51.9%) reported that they were not in a teen program and the remainder reported they had participated in a teen pregnancy program, 22 (40.7%).

In summary, the majority of the total sample came within one standard deviation of the mean on interval data, but significant differences were noted on the variables of age, religion, living status, health insurance, origin of money (medicaid), transportation depended on most (walking), and when the total group was split into pregnant and non-pregnant groups. See Table 4 for presentation of these data.
Table 4

Significant Values for Pregnant and Non-Pregnant Adolescents on Sociodemographic Characteristics

<table>
<thead>
<tr>
<th>SOCIODEMOG.</th>
<th>CHI SQUARE</th>
<th>P VALUE/ DF</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIVING STATUS</td>
<td>7.31</td>
<td>.00 / 4</td>
</tr>
<tr>
<td>HEALTH</td>
<td>11.83</td>
<td>.02 / 5</td>
</tr>
<tr>
<td>INSURANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE (T-TEST)</td>
<td>t=4.17</td>
<td>.00</td>
</tr>
<tr>
<td>MONEY-WELFARE</td>
<td>4.26</td>
<td>.04 / 1</td>
</tr>
<tr>
<td>TRANS.-WALK</td>
<td>8.18</td>
<td>.00 / 1</td>
</tr>
<tr>
<td>WELFARE</td>
<td>16.61</td>
<td>.04 / 1</td>
</tr>
</tbody>
</table>

When reviewing the data, most of the differences were explained. For example, the reason why health insurance was significant was the pregnant girls qualified for and had medicaid benefits which non-pregnant girls cannot qualify for. The major implication of these differences are in the representativeness of the sample, however it should be noted that all interval based responses remained within one standard deviation of the mean. Study hypotheses were tested by analysis of data collected from subjects. The results of testing is presented with accompanying evidence for refuting or supporting each hypothesis. The conditions necessary to refute or support was presented in Chapter Three. Statistical data used to support or repute hypotheses are presented at the conclusion of the discussion on consideration of the hypotheses. These data are shown in
Table 5. Only one null hypothesis was supported in part, the rest were fully supported.

Consideration of Hypotheses

**Hypothesis H.1.0**

There will be no significant relationship between stressful life events of pregnant adolescents and the time of initiation into prenatal care. The null hypothesis stated that there would be no significant relationship between time of initiation (in gestational weeks) into prenatal care and the occurrence of stressful life events as assessed by the MLEI in pregnant adolescents. Data were subjected to the Pearson r correlation coefficient at the p<.05 level of significance. The correlation between time of initiation and the occurrence of stressful life events as measured on the LEI is r = -.0351, (p = .81) and is in the non-significant range. Based upon these findings, the researcher supported the null hypothesis.

**Hypothesis H.2.0**

There will be no significant relationship between protective resources of pregnant adolescents and the time of initiation into prenatal care.

2.1. There will be no significant relationship between mastery in pregnant adolescents and the time of initiation into prenatal care.

2.2. There will be no significant relationship between self-esteem in pregnant adolescents and the time of initiation into prenatal care.
2.3. There will be no significant relationship between social support in pregnant adolescents and the time of initiation into prenatal care.

The null hypothesis states that there would be no significant relationship between protective resources and time of initiation into prenatal care. The three protective resources of mastery (Hypothesis 2.1), self-esteem (Hypothesis 2.2) and social support (Hypothesis 2.3) were subjected to analysis using the Pearson r correlation statistic. The r value for mastery was .0373 (p.=.79); for self-esteem, r=.1029 (p.=.47); and for social support, r=.0479 (p.=.75). Based on these analyses, the researcher supported the null hypothesis.

**Hypothesis H.3.0**

There will be no significant relationship between selected demographic characteristics in pregnant adolescents and the time of initiation into prenatal care.

The null hypothesis states that there would be no significant relationship between selected demographic characteristics and the time of initiation into prenatal care in pregnant adolescents. Interval data were subjected to correlational analyses using the Pearson r correlation statistic. There were no significant relationships in the group as a total on any demographic characteristics analyzed. Based upon the lack of significance in any measure of the group as a whole, the researcher supported the null hypothesis.
Hypothesis H.4.0

There will be no significant difference in stressful life events between pregnant and non-pregnant adolescents. The researcher hypothesized that there would be no significant difference in stressful life events between pregnant and non-pregnant adolescents. Data were subjected to t-test analysis at the \( p < .05 \) level of significance. The t value was .55 with the probability in the non significant range (.58). Based upon these findings, the researcher supported the null hypothesis.

Hypothesis H.5.0

There will be no significant difference in protective resources between pregnant and non-pregnant adolescents.

5.1. There will be no significant difference in mastery between pregnant and non-pregnant adolescents.

5.2. There will be no significant difference in self-esteem between pregnant and non-pregnant adolescents.

5.3. There will be no significant difference in social support between pregnant and non-pregnant adolescents.

The researcher hypothesized that there would be no significant difference in protective resources between pregnant and non-pregnant adolescents. Data for mastery (5.1), self-esteem (5.2) and social support (5.3) were analyzed separately and subjected to t-test analyses at the \( p < .05 \) level of significance. The t value for mastery was 1.30 (\( p = .20 \)), for self-esteem was -.04 (\( p = .97 \)), in the non-
significant range, and for social support was 2.63 (p.=.01), in the significant range. The mean social support scores for pregnant subjects were higher (94.34) than those for non-pregnant subjects. Based upon these findings, the researcher supported in part the null hypothesis.

Table 5

Correlation Values for Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>r value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.1.0 (MLEI X GW)</td>
<td>-.0351</td>
<td>.81</td>
</tr>
<tr>
<td>H.2.1 (PMI X GW)</td>
<td>.0373</td>
<td>.79</td>
</tr>
<tr>
<td>2.2 (RSES X GW)</td>
<td>.1029</td>
<td>.48</td>
</tr>
<tr>
<td>2.3 (IPRI X GW)</td>
<td>.0479</td>
<td>.76</td>
</tr>
<tr>
<td>H.3.0 (demographics X GW)</td>
<td>none significant</td>
<td></td>
</tr>
</tbody>
</table>

PREGNANT VERSUS NON-PREGNANT

<table>
<thead>
<tr>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.4.0 (MLEI)</td>
<td>.55</td>
</tr>
<tr>
<td>H.5.1 (RSES)</td>
<td>-.83</td>
</tr>
<tr>
<td>5.2 (PMI)</td>
<td>1.87</td>
</tr>
<tr>
<td>5.3 (IPRI)</td>
<td>2.63</td>
</tr>
</tbody>
</table>

The sociodemographic characteristics and measures of stressful life events and protective resources of the total group and both subgroups, as well as additional items for the pregnant subgroup have been examined as to similarities, and significant differences. The pregnant subgroup was examined to determine if the time of initiation into prenatal care was
correlated to selected sociodemographic characteristics selected measures of stressful life events and/or protective resources. It can be seen from the examination of responses given by the pregnant subjects, that they were similar with respect to scores achieved on instruments which measured stressful life events (LEI) and the protective resources of mastery (PMI), self-esteem (RSES), social support (IPRI) and sociodemographic characteristics of age of first sexual intercourse, age of first use of birth control, number of pregnancies, abortions, how the current pregnancy happened, when they decided to keep the pregnancy. There was a greater variety of responses to the questions regarding type and frequency of birth control use and who influenced them most to keep the pregnancy. The majority of the pregnant subgroup did not attend a teen pregnancy class.

Additional Findings

Having examined the hypotheses, there still exists additional information to explore. One of these areas included questions asked on the background information form which were not a part of the hypotheses. Presentation of internal consistency reliabilities will be followed by a discussion of inter-correlations between instruments, time of initiation and instruments, sociodemographic characteristics and instruments and last sociodemographic characteristics and initiation into prenatal care. To accomplish parts of the analysis, the pregnant subgroup was further divided into two groups: 1) a group who was able to furnish exact dates of
initiation into care and estimated date of delivery (exact group); and 2) those who were unable to do so (estimate group), necessitating the researcher to estimate gestational week of initiation into care.

All subjects in the total group of pregnant and non-pregnant subjects were asked a question about when prenatal care should begin. Sixty-five (66.3%) of the total group and a similar percent of both subgroups responded "when she knows for sure she's pregnant". The remainder of the responses of the pregnant subjects varied more, and they scored significantly higher in the response "when she starts showing", 9 (17.9%) versus the non-pregnant response rate of 3 (6.5%). A significant difference was noted between groups, chi square=8.149 (p=.04). The difference was related to the greater proportion of pregnant adolescents, 9 (17.3%) who chose "when she starts showing" versus the non-pregnant adolescents, 3 (6.5%) and "when she feels sick", pregnant =11(21.2%) and non-pregnant=6 (13%). The implied meaning by these choices is that pregnant adolescents do not see an immediate need to initiate prenatal care while 33 (77.7%) of non-pregnant adolescents reported that initiation should occur "as soon as a woman knows she's pregnant".

Cronbach alpha reliability coefficients were computed for each data collection tool used in the study. For the MLEI (stressful life events), analysis of 25 items was done using data from 93 completed tools. There were 10 incomplete tools which could not be used in the analysis. The Cronbach
alpha was 0.65. The 7 item PMI (mastery) Cronbach alpha was 0.71. using the full study sample of 103 tools entered. The 10 item self-esteem tool (RSES) had a Cronbach alpha of .88, using a sample of one hundred. The 26 item social support inventory (IPRI) had a Cronbach alpha of .86, based on 91 completed tools. These data are reported in Table 6.

Table 6

<table>
<thead>
<tr>
<th>Instrument</th>
<th># items</th>
<th># tools</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLEI</td>
<td>23</td>
<td>93</td>
<td>0.65</td>
</tr>
<tr>
<td>PMI</td>
<td>7</td>
<td>103</td>
<td>0.71</td>
</tr>
<tr>
<td>RSES</td>
<td>10</td>
<td>103</td>
<td>0.88</td>
</tr>
<tr>
<td>IPRI</td>
<td>26</td>
<td>91</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Correlational analyses on the tools against each other and selected sociodemographic characteristics were done. Inter-correlations for instruments were computed using the Pearson r statistic. In the total sample there was virtually no correlation between stressful life events (MLEI) and either mastery (PMI), \( r = -0.0786 \) \( (p=0.45) \), social support (IPRI), \( r = -0.1965 \) \( (p=0.07) \) or self-esteem, \( r = -0.1012 \) \( (p=0.34) \). Mastery (PMI) correlated significantly to both self-esteem, \( r = 0.6196 \) \( (p=0.00) \) and social support, \( r = 0.5747 \) \( (p=0.00) \). Self-esteem (RSES) correlated positively to social support, in the significant range, \( r = 0.6436 \) \( (p=0.00) \). Table 7 presents these data.
Table 7

Correlations between Instruments

**TOTAL SAMPLE (n=54)***

<table>
<thead>
<tr>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLEI</td>
<td>-.0420</td>
<td>.0338</td>
</tr>
<tr>
<td></td>
<td>p=.77</td>
<td>p=.82</td>
</tr>
<tr>
<td>PMI</td>
<td>.5139</td>
<td>.5751</td>
</tr>
<tr>
<td></td>
<td>p=.00</td>
<td>p=.00</td>
</tr>
<tr>
<td>RSES</td>
<td></td>
<td>.5504</td>
</tr>
</tbody>
</table>

**EXACT SAMPLE (n=40)**

<table>
<thead>
<tr>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLEI</td>
<td>-.0213</td>
<td>.0283</td>
</tr>
<tr>
<td></td>
<td>p=.90</td>
<td>p=.87</td>
</tr>
<tr>
<td>PMI</td>
<td>.4544</td>
<td>.5014</td>
</tr>
<tr>
<td></td>
<td>p=.00</td>
<td>p=.00</td>
</tr>
<tr>
<td>RSES</td>
<td></td>
<td>.5046</td>
</tr>
</tbody>
</table>

**ESTIMATE SAMPLE (n=14)**

<table>
<thead>
<tr>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLEI</td>
<td>-.1282</td>
<td>.0876</td>
</tr>
<tr>
<td></td>
<td>p=.67</td>
<td>p=.77</td>
</tr>
<tr>
<td>PMI</td>
<td>.6759</td>
<td>.7182</td>
</tr>
<tr>
<td></td>
<td>p=.00</td>
<td>p=.02</td>
</tr>
<tr>
<td>RSES</td>
<td></td>
<td>.7059</td>
</tr>
<tr>
<td></td>
<td>p=.03</td>
<td></td>
</tr>
</tbody>
</table>
Gestational week of initiation was correlated to all study instruments and selected sociodemographic characteristics. The total sample was divided into two groups based on whether they provided exact dates (exact group) (n=40) or if dates had to be estimated for gestational weeks (estimate group) (n=14). The group was split into two sub-groups, those whose gestational weeks were estimated due to non exact dates reported and inaccessibility of the exact dates to the researcher (estimate group), and the exact group, those who reported exact dates, which were validated by the researcher in the adolescent's medical record. It was discovered that there existed a significant difference (.04) in age at which the exact sample began using birth control. Those who initiated later were more likely to have begun using birth control later. Also the estimated group correlation was significant at p=.00, regarding stressful life events. Those whose dates were estimated had a higher MLEI score (10.31) versus those in the exact group (9.83). There was no difference in direction noted between the total group or either subgroup and there was no instrument which achieved significance when correlated with gestational week of initiation. When the total group (n=54) was considered, correlation values were significant for mastery (PMI) and self-esteem (RSES) (P=.00), mastery (PMI) and social support (IPRI) (p=.00) and self-esteem (RSES) and social support (IPRI) (p=.00). When the exact group was considered, the correlations were found to be significant with values
slightly different, PMI and RSES \( (p = .00) \), PMI and IPRI \( (p = .00) \) and RSES and IPRI \( (p = .00) \). Values for the estimate group achieved significance for the same categories as the total and exact groups: PMI and RSES \( (p = .00) \), PMI and IPRI \( (p = .02) \) and RSES and IPRI \( (p = .03) \).

When considering time of initiation (GW), there existed one significant relationship, occurring in the estimate group, between gestational weeks (GW) and stressful life events (MLEI), \( r = .8003, (p = .00) \). See Table 8 for presentation of these data.
Table 8
Correlations between Time of Initiation and Instruments

<table>
<thead>
<tr>
<th></th>
<th>MLEI</th>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL SAMPLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME OF INITIATION</td>
<td>-.0351</td>
<td>.0373</td>
<td>.1029</td>
<td>.0479</td>
</tr>
<tr>
<td>GW</td>
<td>p=.81</td>
<td>p=.70</td>
<td>p=.47</td>
<td>p=.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MLEI</th>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXACT GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME OF INITIATION</td>
<td>-.1352</td>
<td>.0206</td>
<td>.1006</td>
<td>.0761</td>
</tr>
<tr>
<td>GW</td>
<td>p=.43</td>
<td>p=.90</td>
<td>p=.55</td>
<td>p=.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MLEI</th>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTIMATE GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME OF INITIATION</td>
<td>.8003</td>
<td>.1665</td>
<td>.1729</td>
<td>.0036</td>
</tr>
<tr>
<td>GW</td>
<td>p=.00</td>
<td>p=.56</td>
<td>p=.55</td>
<td>p=.99</td>
</tr>
</tbody>
</table>
The total group was collapsed into two subgroups, a group whose time of initiation into prenatal care occurred at 12 weeks or prior, this being designated as "early". The second group included those pregnant adolescents who initiated care at 13 weeks gestation until 24 weeks gestation, this being designated the "delayed" group. There were no subjects who qualified for the late group beginning at 25 weeks gestation (ACOG, 1989; Hawaii State DOH, 1992). The two groups were compared on correlations between time of initiation (by category of early and delayed) and both instrument scores and sociodemographic variables using t-test analysis. There were no significant relationships found.

When considering correlations between instruments and selected sociodemographic variables, only three achieved significance in the total group. These were number of persons in the social support network (RELTOT) correlated with social support (IPRI), $r = .3494$ ($p = .02$); highest grade mother of teen had completed (Q26) with self-esteem (RSES), $r = .3804$ ($p = .02$) and social support (IPRI), $r = .4150$ ($p = .00$); and frequency of birth control use (Q44) with stressful life events (MLEI), $r = -.6196$ ($p = .04$). See Table 9 for presentation of these data.
Table 9  
**Significant Correlations between Instruments and Socio-Demographic Characteristics**

**TOTAL SAMPLE (N=54)**

<table>
<thead>
<tr>
<th>MLEI</th>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELTOT-</td>
<td>.2694</td>
<td>-.2218</td>
<td>.2413</td>
</tr>
<tr>
<td># persons</td>
<td>P=.07</td>
<td>P=.11</td>
<td>P=.09</td>
</tr>
</tbody>
</table>

in network

| Q 26- HIGHEST GRADE | .0191 | -.2337 | .3804 | .4150 |
| your mom | P=.89 | P=.09 | P=.00 | P=.00 |

**ESTIMATE SAMPLE (N=14)**

<table>
<thead>
<tr>
<th>MLEI</th>
<th>PMI</th>
<th>RSES</th>
<th>IPRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q44- FREQ.OF BIRTH</td>
<td>-.6196</td>
<td>.1344</td>
<td>.2697</td>
</tr>
<tr>
<td>CONTROL USE</td>
<td>P=.04</td>
<td>P=.67</td>
<td>P=.39</td>
</tr>
</tbody>
</table>

In summary, some additional findings were analyzed to explore the existence of significant relationships between a question asked of the total group regarding the proper time to initiate prenatal care. Pregnant subjects reported a time significantly later than non-pregnant adolescents.

Inter-correlations of the instruments resulted in virtually no association between stressful life events and any instruments. There was a strong positive correlation between mastery and both self-esteem and social support and between self-esteem and social support. When the pregnant sub-group was divided into two smaller groups based on
whether dates were exact or estimated, there were two significant correlations identified. The age at which the exact sample initiated birth control was later for those who initiated later within the sub-group. Those whose dates were estimated had a higher stressful life events score.

When comparing the total pregnant subgroup and both the exact and estimated sub-groups under them, correlation values were significant for mastery and self-esteem, mastery and social support, and self-esteem and social support.

When considering time of initiation there was one significant correlation in the estimate group between gestation weeks of initiation and stressful life events, the later gestational week of initiation the greater the number of reported stressful life events. When the total pregnant group was examined for relationships between sociodemographic characteristics and instruments three significant correlations were identified. The more people in the support network the higher the social support score; the higher the grade completed by the adolescents' mothers the higher the self-esteem scores they had; and the later the first use of birth control the higher stressful life events score. The total sub-group of pregnant subjects was then divided into two groups, those who initiated at twelve weeks or earlier (early group) and those who initiated after 12 weeks (delayed group). There were no significant relationships between time of initiation, sociodemographic characteristics and study instruments in the two groups.
CHAPTER FIVE
DISCUSSION and CONCLUSIONS

The purpose of this descriptive study was to investigate relationships between stressful life events and/or the selected protective resources of mastery, self-esteem and social support, and the time of initiation into prenatal care by pregnant adolescents aged 14-18 years. The sample consisted of 54 pregnant and 49 non-pregnant adolescents, for a total of 103 subjects. Non-pregnant subjects were recruited so that scores on survey instruments could be compared to see if pregnancy might explain observed differences in scores. The researcher administered four instruments to each adolescent, one stressful life events inventory (MLEI) and three inventories, one each for mastery, self-esteem and social support (independent variables).

Frequencies, percentages and measures of central tendency were computed where applicable. Correlations using the Pearson r statistic were computed to determine the relationship between scores on the inventories and time of initiation into prenatal care (dependent variable), treated as a continuous variable. Several manipulations of the dependent variable were conducted to examine differences in independent variable measures between those in the pregnant sample who reported exact dates of initiation into prenatal care and those for whom estimates had to be figured due to inexact dates. The total group of pregnant subjects was also divided into those initiating prenatal care earlier versus
later for the purpose of examining differences in the independent variables. Differences in pregnant and non-pregnant groups were examined relative to the independent variables and selected sociodemographic characteristics using t-test analysis or analysis of variance. This chapter will consider the study hypotheses and present questions and considerations for future research and recommendations for clinical practice.

**Consideration of Study Hypotheses**

When considering the null hypotheses of this study, one was supported in part and the rest were supported in full. Thus, there were no significant relationships between either stressful life events or protective resources and time of initiation into prenatal care. There were also no significant differences between pregnant and non-pregnant subjects in scores achieved on three out of the four study instruments. When comparing scores on study instruments between pregnant and non-pregnant sub-groups, pregnant girls showed significantly higher social support scores.

This led the researcher to wonder if pregnancy in Hawaii, among primarily Hawaiian/Part Hawaiian adolescents may be more accepted and may actually promote increased social support. There were some significant differences in sociodemographic characteristics between pregnant and non-pregnant sub-groups. The null hypothesis was only supported in part as outlined in the evidence necessary for support outlined in Chapter Three. There was no significant
difference in the measurement of stressful life events, mastery, self-esteem between pregnant and non-pregnant groups.

Lazarus and Folkman's (1984) theoretical framework of stress adaptation was used as a basis for the applied conceptual framework of Dormire et al. (1989) presented in Chapter Three. This applied framework was tested using the variables of this study. According to the theoretical and applied models, some combination of stressors acted upon by some combination of mediators would result in an outcome of adaptation that is either negative or positive. According to the model, those who initiated prenatal care earlier would have had either less stressors or higher mediators than those who initiated later. No relationship of this kind was found to be significant. Rationale for this finding in the opinion of the researcher, may have been due to intervening variables, such as the quality of relationships or the perception of life changes. These intervening variables may have affected how perceived stressors (stressful life events) or the presence of mediators (protective factors) impacted outcome (early or delayed initiation into prenatal care).

Future Research

Certain questions arise from this study. What do pregnant adolescents know about the use of birth control? When asked about frequency of birth control use, an equal number of subjects (n=10) responded to all options from never to always. This suggests that this particular group of
adolescents were either uninformed as to how birth control works or were careless, even though they had the knowledge. Implications for further research include conducting a general survey of adolescents regarding knowledge of birth control use. Community, school, and health professions might then work together to provide the education and support services needed to support adolescents in using accurate knowledge in the practice of birth control.

A second question which arises is "Is there a concentration of particular ethnicities in the research environment where data like these are collected?" In the health classes the researcher attended to collect data from non-pregnant subjects, the ethnic distribution was clearly biased in the direction of Hawaiian/Part Hawaiian. The researcher attended all six periods of the school's health class in one day to get a sample of 15 girls. The ethnic distribution of the class appeared consistent for all periods. At the clinics or programs that served the pregnant subjects, the researcher also noticed the same ethnic distribution. There were only three Caucasians in the entire group. When ethnicity is considered in other data sets, such as the Hawaii State Department of Health Status Monitoring, the ethnicity of pregnant adolescents is consistent with the findings in this study. As a result of this finding, the researcher concludes that although efforts were made to prevent sample bias by collecting data in different parts of the island and in schools where ethnic distribution was more
evenly distributed among at least four ethnicities, there was still a higher representation of Hawaiian/Part Hawaiians in both sub-groups than any other ethnicity. The highest rate of pregnancy in Hawaii is among Hawaiian/Part Hawaiian adolescents, and they seem to attend public schools more often than private schools. In light of this, it seems important for the state department of health (DOH) to provide opportunities to deliver and test mastery of information regarding birth control in this population. The DOH should provide support services for adolescents, even if there is not content in the regular school curriculum. These actions are necessary in order to influence the rate of adolescent pregnancy on Oahu.

Since pregnant girls were more likely to live in a single mother headed household, a question arises, "Could the relationship of pregnancy to living status be related to decreased presence of the mother and/or increased stress on the adolescent who comes from being in a single parent home?" Additional research should be done comparing pregnant adolescents who come from single parent homes versus those from two parent homes.

Most (77.0%) of the subjects reported having first sexual intercourse between the ages of 14 to 16. Another question arises, "Does campaigning against abstinence of sex premaritally have an influence and does religious preference make a difference?" When subjects were asked "How did this pregnancy happen", most replied "It just happened." This
suggests that most subjects perceived little control over the environment, thus one would expect the scores on mastery to be low. Indeed, this appeared to be the case. The mean mastery scores for pregnant subjects were 20 out of a possible 49. A question which arises is "Would there be a difference in the numbers of pregnancies among those adolescents who started out with lower rather than higher mastery scores?" There needs to be research conducted to answer this question.

Although there were limitations in this study, information from the study supports the continued follow-up of this sample or cohorts like it to learn more about the resultant outcomes of pregnancy of adolescents with high or low stressful life events and/or protective resources. This study indicates that measures of stressful life events interfacing with measures of the protective factors of mastery, self-esteem, and social support do not make a difference as to when a pregnant adolescent initiates prenatal care. Additional research is needed to examine qualitatively what does bring them to prenatal care and what they perceive they are getting in the way of benefits from that care. Research needs to explore whether it is the social support benefits that bring adolescents into the health care system and what is needed to keep them coming back. Investigation about the social support networks of pregnant adolescents should include a measurement of the
value placed by the adolescent on support from various sources.

**Recommendations for Practice**

Surprisingly the majority of pregnant adolescents did not specify a religion and of those who did, Catholic came out as the most common. Implications for prevention of pregnancy in Catholic and other adolescents includes sharing information such as this with the Church, and recommending that either the church take further action to educate young people in the realities of relationships and sexual activity. This may include help from community agencies, parents and adolescents themselves to educate the youth of the church about dealing with societal pressures to become sexually active. Ultimately, it is the community and the state who finance the bill for the well-being of some adolescents who become pregnant.

The fact that there were any subjects with no insurance reflects the achievement of the State of Hawaii and the State Health Insurance Plan (SHIP) in providing health insurance for all. This sample of pregnant adolescents had already accessed the health care system independently, yet had not been signed up for SHIP or Medicaid. Implications for practice include establishing a more thorough, consistent method of both enrollment and processing for those with no insurance.

Subjects were asked whether they had been or were in a school based teen pregnancy program. Thirty (55.6%)
responded negatively and 22 (40.7%) responded positively. It seems that either these pregnant adolescents were comfortable remaining in the regular school program or there may not have been one in the school they were attending, or some of them may not have been going to school and had no access to a teen program. In retrospect the researcher would have followed this question with "if no, state reason why". Implications for practice include institution of more effective means for enrolling and keeping pregnant teens in a teen pregnancy program.

Upon review of the problem addressed in the introduction to this study, Hawaii Department of Health statistics for 1992 recorded that 35.0% of pregnant adolescents aged 13-19 initiated delayed (2nd trimester) care and 10.0% initiated late (3rd trimester) care. In the 53 subjects (aged 14-18) in this study, the rate of delayed care initiated was 53.0%, with no occurrences of late initiation. Although this is greater than the overall statewide rate, it is more consistent with the rates for Hawaiian/Part Hawaiian ethnicity which comprised 50% of the study sample and have tended to be higher (Hawaii State DOH, 1990). The findings of this study support the high incidence of initiation after the first trimester found in the Hawaii State DOH statistics. The fact that there was no incidence of late initiation into prenatal care among the subjects in the study sample is positive; however, a majority of subjects reported that the time to initiate is when they are either sick or start
showing. This attitude may have been responsible for the mean time of initiation of the group to be during the second trimester of pregnancy.

**Conclusion**

This study sought to investigate the relationship between stressful life events, protective resources of mastery, self-esteem and social support and time of initiation into prenatal care. An assumption was made based on the conceptual framework, that some interaction existed between the influence of stress and resources to result in either a positive or negative outcome of adaptation. Data were collected from pregnant adolescents on tools which were intended to measure these variables. Data were also collected from non-pregnant adolescents to ascertain if the state of being pregnant would account for any difference in scores on stress or resource variables. Results indicate that there was no significant difference in stress or resource scores as correlated to the time of initiation into prenatal care by pregnant adolescents and that there was no significant difference in scores between the pregnant and non-pregnant groups.

The instruments used in this study demonstrated varying levels of internal consistency reliability within the range considered acceptable, with the exception of the MLEI which had to be modified for use with adolescents, and was slightly lower than the rest. There has been a concentration of efforts on the importance of early initiation into prenatal
care by high risk groups such as pregnant adolescents. States, including Hawaii, have continued to express year end statistical reports on the number of women who initiated during each trimester. This has put importance on the time of initiation into care, as if it made the difference between a good and a bad outcome. Since the rates of perinatal/neonatal morbidity and mortality have not varied significantly in a decade, there must be other criteria which are more important predictors of perinatal outcome. This study shows that for a small group of pregnant adolescents aged 14-18, who are primarily of Hawaiian/Part Hawaiian ethnicity, factors other than the number of stressful life events or the protective resources may influence the time of initiation into prenatal care. It is also important to examine whether time of initiation is a significant part of the equation resulting in better perinatal outcomes, or more importantly in discovering what are the elements of that equation.
APPENDIX A: CONSENT FORMS

AGREEMENT TO PARTICIPATE IN A RESEARCH STUDY TO IDENTIFY FACTORS ASSOCIATED WITH TIMING OF INITIATION INTO PRENATAL CARE BY PREGNANT ADOLESCENTS IN HAWAII.

PRINCIPAL INVESTIGATOR: JOYCE VOGLER, M.S., R.N.
ADDRESS: University of Hawaii School of Public Health, DRPH Program, 1960 East West Rd., Mailbox 137, Honolulu, HI 96822
TELEPHONE: 956-6263- campus, 530-5966 digital beeper

Joyce Vogler, a student at UH School of Public Health is doing a study to find out about the things that influence pregnant girls to start prenatal care. I, have been asked by Joyce or her assistant ____________ to participate in this study. I understand that my participation in this study is voluntary. I understand that no physical or mental harm will come to me as a result of completing three surveys and a short interview. I can change my mind about participating at any time if any of the questions are too personal or I can choose not to answer any one or all of the questions.

If I agree to participate, I will be asked to answer yes or no to 23 questions about myself, including questions about my medical and personal history and stresses which have occurred during the past six months. I will then be asked to mark three short surveys about what resources I have and make a list of the people who are supportive to me. I can ask for help if I do not understand the meaning of what is being asked. The total time that will be involved will be about 20 minutes and will be done before my scheduled prenatal class.

After I have filled out the surveys, the numbered information sheet which has my name on it will be separated from the surveys, which have the same number on them as the information sheet. The information sheet will be placed and sealed in an envelope in my presence and I will initial the envelope. This will prevent anyone who is tallying the surveys to identify them to me. The envelope will be placed in a locked file and will only be opened by Joyce in case some information may be missing or unclear and I may need to be called for clarification. The envelopes and surveys will be kept in the locked file for one year after the information is tallied and then it will be discarded. Any tables which contain my information in them will contain many others' information also, so there will be no chance of anyone recognizing me as having contributed information.

I understand that I will not receive any compensation for my participation in this study and that this research study is meant to help health workers and nurses to understand the needs of teens who are pregnant and plan better programs for them.

I certify that I have been told of the possible risks involved in this project, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights; nor does it release the principal investigator or the institution or any employee or agent thereof from liability for negligence.
I herewith give my consent for Joyce Vogler or her assistants to gain access to all information I have provided to the teen intervention program. I understand that my name will not be on any of the information provided.

I have received a copy of this form to keep.

________________________________________ Date:______________
Signature of individual participant

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Subjects, University of Hawaii, 2540 Maile Way, Honolulu, HI 96822. Phone: (808) 956-8658.)

Consent form for pregnant teens
AGREEMENT TO PARTICIPATE IN A RESEARCH STUDY TO
IDENTIFY FACTORS ASSOCIATED WITH TIMING OF INITIATION INTO PRENATAL CARE BY
PREGNANT ADOLESCENTS IN HAWAII.

PRINCIPAL INVESTIGATOR: JOYCE Vogler, M.S., R.N., DrPhc
ADDRESS: University of Hawaii School of Public Health,
DrPh Program, 1960 East West Rd., Mailbox 137, Honolulu, HI 96822
TELEPHONE: 956-6263 - campus, 530-5966 digital beeper

Joyce Vogler, a student at UH School of Public Health is doing a study to find out about the stresses and resources that both pregnant and non pregnant girls aged 14 to 18 have. I, ________________ have been asked by Joyce to participate in this study. I understand that my participation in this study is voluntary. I understand that I will be asked to complete four short surveys which may identify stresses and resources in my life. All my answers will remain confidential as I will not be required to identify myself in any way and there will be no way to identify me to the survey I filled out.

I understand that I will not be paid for my participation in this study and that this research study is meant to help health workers and nurses to understand the needs of teens who are pregnant and plan better programs for them. I understand that I may receive a token gift for participating in food certificates or other items.

I certify that I have been told of the possible risks involved in this project, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights; nor does it release the principal investigator or the institution or any employee or agent thereof from liability for negligence.

I have received a copy of this form to keep.

_________________________________ Date:______
Signature of individual participant

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Subjects, University of Hawaii, 2540 Maile Way, Honolulu, HI 96822. Phone: (808) 956-8658.)

Consent form-high school
To: Parents of teenage girls attending Kailua High School
From: Joyce Vogler RN, MS, Doctoral Candidate in Public Health
Date: June 4, 1993

Dear Parent,

This note is to request your permission for your teenage daughter to complete a survey on teen resources and stresses. The purpose of this survey is to learn about the resources and stresses that teenage girls aged 14-18 experience. Your daughter will be asked to complete the survey in her health class. If she chooses to participate, her name will not be on any of the survey materials, thus her identity will remain anonymous. Please sign and date in the space provided, indicating that you give your permission for your daughter to complete the survey materials if she chooses. Please give this slip to your daughter to return.

Signature: ____________________________
Date: ________________________________

To: Parents of teenage girls attending Kalaheo High School Summer Session
From: Joyce Vogler RN, MS, Doctoral Candidate in Public Health
Date: June 29, 1993

Dear Parent,

This note is to request your permission for your teenage daughter to complete a survey on teen resources and stresses. The purpose of this survey is to learn about the resources and stresses that teenage girls aged 14-18 experience. Your daughter will be asked to complete the survey in her health class. If she chooses to participate, her name will not be on any of the survey materials, thus her identity will remain anonymous. Please sign and date in the space provided, indicating that you give your permission for your daughter to complete the survey materials if she chooses. Please give this slip to your daughter to return.

Signature: ____________________________
Date: ________________________________
APPENDIX B: SURVEY FORMS

Life Events Inventory

The purpose of this inventory is to learn more about you and what stresses you have experienced in the past six months. This information will be used to help public health workers who plan services to gain further understanding about stresses which affect pregnant teens. Circle Y for yes and N for no regarding whether the following things have happened to you in the past 6 months.

1. Have you been really sick or hurt so you had to go to the hospital?
   Y N

2. Did you stop hearing or seeing all of a sudden?
   Y N

3. Did you become pregnant when you didn't want to?
   Y N

4. Did your boyfriend force you to have sex with him?
   Y N

4a. Did anybody force you to have sex with them?
   Y N

5. Have you had any trouble having sex?
   Y N

6. Have you been having sex with your boyfriend?
   Y N

7. Did a close family member become sick suddenly?
   Y N

8. Did a close family member have a long illness so that they had to go to the doctor?
   Y N

9. Did a close family member start drinking heavily?
   Y N

10. Did a close family member try to kill themselves?
    Y N

11. Did a close family member die?
    Y N

12. Did a close friend die?
    Y N

13. Have there been more fights in your family you live with (mom, dad)?
    Y N

14. Have there been more fights with other family (aunties)?
    Y N

15. Did your boyfriend talk mean to you?
    Y N

16. Did your boyfriend hit you?
    Y N

16a. Did anyone hit you?
    Y N

17. Did you have more fights with your boyfriend?
    Y N

18. Did your boyfriend cheat on you?
    Y N

19. Did you make things up after you broke up with your boyfriend?
    Y N

20. Did you move to another house?
    Y N

21. Did you feel happy about the move?
    Y N

22. Were you able to keep all your old friends?
    Y N

23. Do you miss seeing someone you used to see before you moved?
    Y N
Directions: Place the number (1-7) that best indicates your level of agreement with the following statements:

Mastery:

1. _____ There is really no way I can solve the problems I have.
2. _____ Sometimes I am feeling I am being pushed around in life.
3. _____ I have little control over the things that happen to me.
4. _____ I can do just about anything that I really set my mind to.
5. _____ I often feel helpless in dealing with the problems in life.
6. _____ What happens to me in the future mostly depends on me.
7. _____ There is little I can do to change many of the important things in my life.

Self-Esteem:

1. _____ I feel that I’m a person of worth, at least on an equal with others.
2. _____ I feel that I have a number of good qualities.
3. _____ All in all, I am inclined to feel that I’m a failure.
4. _____ I am able to do things as well as most other people.
5. _____ I feel I do not have much to be proud of.
6. _____ I take a positive attitude about myself
7. _____ On the whole, I am satisfied with myself.
8. _____ I certainly feel useless at times.
9. _____ I wish I could have more respect for myself.
10. _____ At times I think I am no good at all.
INTERPERSONAL RELATIONSHIP INVENTORY

Most relationships with people we feel close to are both helpful and stressful. Below are statements that describe close personal relationships. Please read each statement and mark an X in the box that best fits your situation. There are no right or wrong answers.

These first statements ask you to disagree or agree.

<table>
<thead>
<tr>
<th></th>
<th>STRONGLY DISAGREE</th>
<th>DISAGREE</th>
<th>NEUTRAL</th>
<th>AGREE</th>
<th>STRONGLY AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I know someone who makes me feel confident in myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Some people I care about share similar views with me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>There is someone I can turn to for helpful advice about a problem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I can talk openly about anything with at least one person I care about.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>There is someone I could go to for anything.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Some people in my life are too pushy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I can count on a friend to make me feel better when I need it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>There is someone in my life who gets mad if we have different opinions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>It's safe for me to reveal my weaknesses to someone I know.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Someone I care about stands by me through good times and bad times.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>I have the kind of neighbors who really help out in an emergency.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>There is someone I care about that I can't count on.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>If I need help, all I have to do is ask.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>I have enough opportunity to talk things over with people I care about.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
These next statements ask you how often something happens.

<table>
<thead>
<tr>
<th>Statement</th>
<th>NEVER</th>
<th>ALMOST NEVER</th>
<th>SOMETIMES</th>
<th>FAIRLY OFTEN</th>
<th>VERY OFTEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. I have enjoyable times with people I care about</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16. I spend time doing things for others when I'd really rather not</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17. Some people I care about invade my privacy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18. I am embarrassed by what someone I care about does</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19. Someone I care about tends to take advantage of me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. Some people I care about are a burden to me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21. I wish some people I care about were more sensitive to my needs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22. People I care about make me do things I don't want to do</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23. There is tension between me and someone I care about</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24. I have trouble pleasing some people I care about</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25. At least one person I care about lets me know they believe in me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26. Some people I feel close to expect too much of me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Continue next page...
In the lines below, please list the people who are important to you, using only their first names or initials. For each person, state their relationship to you:

**EXAMPLE**

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<th>Person</th>
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**YOUR LIST**

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ID# Background Information Sheet
Birthdate_Age_Zip Code:
Date prenatal care started_EDC_

1. Ethnicity: [ ] Hawaiian/ Part Hawaiian [ ] Filipino [ ] Caucasian [ ]
Japanese [ ] Chinese [ ] Korean [ ] Samoan [ ] Tongan [ ] Portuguese [ ]
Black [ ] Other

Religion: [ ] Catholic [ ] Christian (specify which) [ ] Mormon
[ ] Jehovah's Witness [ ] Jewish [ ] Buddhist [ ] Muslim [ ] undecided [ ]
other

Marital status: [ ] single [ ] married [ ] divorced [ ]

Living status: with [ ] mom [ ] dad [ ] brother or sister [ ]
stepparent [ ] auntie [ ] uncle [ ] cousin [ ] boyfriend [ ] friend-no
relation [ ] other

How many people in your house? _________

2. Name of School you go to: _________

Are you in the teen pregnancy class? [ ] yes [ ] no

If no, will you attend it sometime in this pregnancy? [ ] yes [ ] no

Highest School Grade you completed: [ ] <9
[ ] 9 [ ] 10 [ ] 11 [ ] 12

Highest school grade baby's father completed: [ ] <9
[ ] 9 [ ] 10 [ ] 11 [ ] 12

Highest school grade your mom completed: [ ] <9
[ ] 9 [ ] 10 [ ] 11 [ ] 12 [ ] don't know

How often do you see the baby's father? [ ] every day [ ] once a week [ ]
once in a while [ ] rarely [ ] not any more, since when? _________

3. Which health insurance do you use most? [ ] HMSA [ ] Queens
Health Plan
[ ] Kaiser [ ] Champus [ ] Medicaid [ ] SHIP [ ] none [ ]

Other

Where do you get your money: [ ] myself (working) [ ] parents [ ]
boyfriend [ ] friends
[ ] boyfriend's family [ ] other relative [ ] welfare [ ]
other

What kind of transportation do you depend on most? [ ] bus [ ] my car [ ]
boyfriend's car [ ] rides from family [ ] rides from friends [ ]
walking [ ] bike [ ] other

Have you had any contact with the following agencies regarding you or
your family?
[ ] Public Health Nursing [ ] Detention home [ ] Probation officer [ ]
WIC [ ] Welfare
[ ] Child protective Services [ ] Psychiatrists/Therapists [ ]
Special Ed. classes
[ ] None [ ] Other

4. What age did you first start having sex? _________

What age did you use birth control? Type: [ ] pill [ ] IUD [ ] foam
and condoms
[ ] diaphragm [ ] Norplant [ ] other, specify
How often did you use the birth control? [ ] always [ ] most of the time [ ] some of the time [ ] rarely [ ] never
What age did you first become pregnant? How many times have you ever been pregnant? Of those pregnancies how many did you abort? give birth to.

5. How would you say this pregnancy happened? [ ] trying to get pregnant [ ] not trying to get pregnant, birth control didn't work [ ] neither trying or not , it just happened
When did you decide to keep this pregnancy? [ ] as soon as I found out [ ] the month after I found out [ ] 2 months after I found out [ ] 3 months after [ ] 4 months after or more
Who influenced you the most to keep the baby? [ ] boyfriend [ ] mom [ ] dad [ ] sister [ ] brother [ ] grandmother [ ] other relative
When should a woman get the first check -up when she's pregnant? [ ] after she starts showing [ ] when someone tells her to [ ] when she feels sick [ ] when she knows for sure that she's pregnant [ ] other
Background Information Sheet
High School

Birthdate: _______________ Zip code where you live _______________
Age: _______________ Grade _______________

1. Ethnicity: [ ] Hawaiian/Part Hawaiian [ ] Filipino [ ] Caucasian [ ]
Japanese [ ] Chinese [ ] Korean [ ] Samoan [ ] Tongan [ ] Portuguese [ ]
Black [ ] Other _______________

Religion: Catholic [ ] Christian (specify which) _______________
Mormon [ ] Jehovah's Witness [ ] Jewish [ ] Buddhist [ ] Muslim [ ] undecided [ ]
Other _______________

Marital status: [ ] single [ ] married [ ] divorced [ ]
Other _______________

Living status: with [ ] mom [ ] dad [ ] brother or sister [ ]
stepparent [ ] auntie [ ] uncle [ ] cousin [ ] boyfriend [ ] friend-no relation [ ] other
How many people in your house? _______________

3. Which health insurance do you use most? [ ] HMSA [ ] Queens
Health Plan [ ] Kaiser [ ] Champus [ ] Medicaid [ ] SHIP [ ] none [ ]
Other _______________

Where do you get your money: [ ] myself (working) [ ] parents [ ]
boyfriend [ ] friends [ ] boyfriend's family [ ] other relative [ ] welfare [ ]
other _______________

What kind of transportation do you depend on most? [ ] bus [ ] my car [ ]
boyfriend's car [ ] rides from family [ ] rides from friends [ ]
walking [ ] bike [ ] other _______________

Have you had any contact with the following agencies regarding you or your family?
[ ] Public Health Nursing [ ] Detention home [ ] Probation officer [ ]
WIC [ ] Welfare [ ] Child protective Services [ ] Psychiatrists/Therapists [ ]
Special Ed. classes [ ] None [ ] Other _______________

When should a woman get the first check-up when she's pregnant? [ ]
after she starts showing [ ] when someone tells her to [ ] when she
feels sick [ ] when she knows for sure that she's pregnant [ ]
other _______________
Cover Sheet

ID # ______ Age_________ Birthdate________________________
Name:____________________________________
Address:________________________________________________________________________
Zip Code:_________ Phone:__________________
First visit to prenatal care on:_____/_____/
Where:_____________________________

Permission to follow-up

[ ] Yes, I give my permission for Joyce or her assistants to contact me at a later time in my pregnancy or after delivery. Here are some other phone numbers where you might be able to reach me after I give birth:______________________________________________________

[ ] No, I would rather not be contacted again by Joyce or her assistants.

This sheet will be placed in an envelope, sealed and initialed by the participant, separate from the surveys filled out by the participant.
MEMORANDUM

March 30, 1993

TO: Ms. Joyce Vogler
School of Nursing

FROM: Paul Kakugawa, Executive Secretary
Committee on Human Studies

SUBJECT: CHS #9276 - FACTORS ASSOCIATED WITH TIMING OF INITIATION INTO PRENATAL CARE BY PREGNANT ADOLESCENTS IN HAWAII

Your project identified above has received approval for one year by the U.H. Committee on Human Studies (CHS) at its meeting on March 12, 1993.

If in the active development of your project you change significantly the involvement of humans from plans indicated in the materials presented for review, or if unanticipated problems arise involving the risks to subjects or others, report must be made promptly to the CHS, either to its Chairperson or through members of the review group. This is required in order that (1) updating of protective measures for humans involved may be accomplished, and (2) prompt report to DHHS may be made by the University if required.

In accord with the regulations under which the CHS functions, you are expected to maintain as an essential part of your project records, appropriate summaries of information conveyed to your human participants, as well as all executed consent forms and data.

If your project continues beyond one year, re-submission to the CHS for annual review is required, usually coincidental with and prior to submission of continuation or renewal proposals.

We wish you success in this endeavor and stand ready to be of assistance to you and to your project personnel in any way and at any time.

Enclosed is our certificate HHS 596 for this project.

PK:bl

Enclosure
**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**PROTECTION OF HUMAN SUBJECTS**

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**APPLICATION IDENTIFICATION NO. (if any)**

**POLICY:** A research activity involving human subjects that is not exempt from HHS regulations may not be funded unless an Institutional Review Board (IRB) has reviewed and approved the activity in accordance with Section 474 of the Public Health Service Act as implemented by Title 45, Part 46 of the Code of Federal Regulations (45 CFR 46—as revised). The applicant institution must submit certification of IRB approval to HHS unless the applicant institution has designated a specific exemption under Section 46.101(b) which applies to the proposed research activity. Institutions with an assurance of compliance on file with HHS which covers the proposed activity should submit certification of IRB review and approval with each application. (In exceptional cases, certification may be accepted up to 90 days after the receipt date for which the application is submitted.) In the case of institutions which do not have an assurance of compliance on file with HHS covering the proposed activity, certification of IRB review and approval must be submitted within 30 days of the receipt of a written request from HHS for certification.

1. TITLE OF APPLICATION OR ACTIVITY

**FACTORS ASSOCIATED WITH TIMING OF INITIATION INTO PRENATAL CARE BY PREGNANT ADOLESCENTS...**

2. PRINCIPAL INVESTIGATOR, PROGRAM DIRECTOR, OR FELLOW

Joyce Vogler

3. FOOD AND DRUG ADMINISTRATION REQUIRED INFORMATION (see reverse side)

4. HHS ASSURANCE STATUS

☐ This institution has an approved assurance of compliance on file with HHS which covers this activity.

☐ X-1217 Assurance Identification number 01 IRB Identification number

☐ No assurance of compliance which applies to this activity has been established with HHS, but the applicant institution will provide written assurance of compliance and certification of IRB review and approval in accordance with 45 CFR 46 upon request.

5. CERTIFICATION OF IRB REVIEW OR DECLARATION OF EXEMPTION

☐ This activity has been reviewed and approved by an IRB in accordance with the requirements of 45 CFR 46, including its relevant subparts. The certification fulfills, when applicable, requirements for certifying FDA status for each investigational new drug or device. (See reverse side of this form.)

March 12, 1993 Date of IRB review and approval. (If approval is pending, write "pending". Followed certification is required.)

☐ Full Board Review

☐ Exempt Review

☐ The activity involves multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by 45 CFR 46 will be reviewed and approved before they are initiated and that appropriate further certification (Form HHS 560) will be submitted.

☐ Human subjects are involved, but this activity qualifies for exemption under 46.107(b) in accordance with paragraph _______ (insert paragraph number of exemption in 46.107(b)). If deemed exempt, the institution did not designate that exemption on the application.

6. Each official signing below certifies that the information provided on this form is correct and that each institution assumes responsibility for assuring required future reviews, approvals, and submissions of certification.

<table>
<thead>
<tr>
<th>APPLICANT INSTITUTION</th>
<th>COOPERATING INSTITUTION</th>
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<tbody>
<tr>
<td>NAME, ADDRESS, AND TELEPHONE NO.</td>
<td>NAME, ADDRESS, AND TELEPHONE NO.</td>
</tr>
<tr>
<td>UNIVERSITY OF HAWAII</td>
<td>CSHH 9276</td>
</tr>
<tr>
<td>2540 Maile Way, Spalding 253</td>
<td>Honolulu, HI. 96822</td>
</tr>
<tr>
<td>(808) 956-8658</td>
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**NAME AND TITLE OF OFFICIAL SIGNATURE**

Paul Kakupuwa, Assistant Director

**SIGNATURE OF OFFICIAL LISTED ABOVE**

11/10/83

**HHS 366 (Rev. 1/83)**

**ADDITI0NAL SPACE IS PROVIDED, PLEASE USE SPACE UNDER FORM.**
June 1, 1993

Ms. Joyce Vogler
Doctoral Candidate, School of Public Health
University of Hawaii
2528 The Mall, Webster 410
Honolulu, HI 96822

Dear Ms. Vogler,

Thank you for your letter of May 25, 1993, asking for permission to administer a survey for non-pregnant teens at Kailua High School. As I indicated in our conversation, the following would have to occur before a survey can be administered:

In accordance with Chapter 20 of the Department of Education's Administrative Rules, written parent or guardian permission must be obtained before administering a survey containing questions about the students' personal beliefs or practices in sex, family life, morality and religion. The contents of your survey fall within this description, and therefore, parental permission is required for all students.

Consent by Kailua High School Principal to conduct the study and willingness by the administration to oversee this process in accordance with Chapter 20 guidelines. I have received a copy of the permission letter sent to you by Mary Murakami, the Kailua High school Principal.

With compliance to the above requirements, I grant you permission to administer the survey.

Sincerely,

[Signature]
John Soza
Windward District Superintendent
Joyce Vogler, M.S., R.N.
2528 The Mall
Webster 410
Honolulu, HI 96822

Dear Ms. Vogler:

I have read your dissertation proposal with great interest, and I wish you success with your survey research.

You have my permission to include Kailua High School students in your study with one condition. I am asking you to send me a copy of your dissertation when it is finished.

The teen pregnancy issues you are studying are important. Your findings will be highly relevant to our pregnant and general population of students.

Sincerely,

(Mrs.) Mary Murakami
Principal

cc: Pam Bond, Counselor
    Sandra Oda, Health Teacher
March 15, 1993

Ms. Joyce Vogler, MS, RN, DrPHc
Asst, Professor of Nursing
University of Hawaii
2528 The Mall
Webster 410
Honolulu, HI 96822

Dear Ms. Vogler,

I have reviewed your proposal and survey instruments and feel they would be appropriate for the clients involved in the Teen Intervention Program. Your instruments appear to be easy to understand for the teens. Please feel free to ask their participation in your study.

If there is anything else that I can be of service to you, please feel free to just ask.

Sincerely,

Donna Tsutsumi-Ota, MSW
Program Director
Teen Intervention Program

Kapiolani Medical Center for Women and Children
1319 Punahou Street, Room 839
Honolulu, Hawaii 96826
(808) 973-8501
APPENDIX D: INTERVIEW SCRIPT

Research Assistant Directions
For Assistance with Data Collection

1. Make contact with pregnant teens aged 14-18.

2. Ask them if they would be willing to complete several surveys on resources and stresses of teens. You may tell them that the intent of the study is to gain information which would be shared with those planning programs for pregnant teens to give them insight into the stresses and resources that teens may need help with.

3. If the teen acquiesces, explain to her that we would like her to read the consent form which explains more about her participation and that we need her to fill in her name and sign and date the form before she begins completing the surveys.
   If the teen declines, thank her anyway and do not pursue.

4. After she has signed the consent, explain to her that she gets a copy to keep (yellow and should she have any questions at a later time she should feel free to call the digital beeper number 530-5966 which is Joyce Vogler ,the person in charge of the study.

5. Before giving her the surveys explain them briefly as follows:
   Refer to Page 1 - This is a cover sheet- Joyce, the person in charge of the study, would like to follow-up some of the teens either during pregnancy and/or after birth. If you wouldn't mind allowing her, please fill in the information and check yes. If you do not wish to be followed check no. This sheet will be separated from your surveys so that there will be no information on the surveys identifying them to you - you remain completely anonymous. After the cover sheet is signed place it along with the white copy of the consent form in the envelope with the matching number to the consent and surveys.
   Refer to Page 2 - this is a information sheet on your background
   Refer to Page 3- these are 2 surveys on resources. Using the key above going from Strongly disagree (1) to strongly agree (7) read each statement and place the number in the blank which best fits your opinion about that statement.
   Refer to Page 4and5 Read each statement on resources and mark an X in the box which best fits your opinion about that statement. Use the key above to determine which number box to check with strongly agree (1) to strongly disagree (5).
   Refer to Page 6 - List initials on the left and relationship of that person to you for all the supportive people you have in your life.
   Refer to Page 7 - Read each question on stresses and place an X over Y if it did happen to you in the past 6 months or N if it did not happen to you in the past 6 months.
   Remind them that their name is not on this survey and no one will identify this completed survey to the teen.
   Thank them for their participation when they hand the survey in. Place the finished survey in the folder provided.
   Thank you for your kokua.
APPENDIX E: CURRICULUM VITAE

Curriculum Vitae

Joyce H. Vogler
1605 Ulualana Pl. Kailua, Hi 96734
(808) 263-2248; Digital pager-530-5966
SSN : 213- 58- 7276

Present Full-time position: Assistant Professor in the School of Nursing, University of Hawaii.

Academic and Professional Education

1993 Doctorate in Public Health
University of Hawaii Honolulu,HI
Degree focus: Public Health Administration

Dissertation title: The Relationship of Stressful Life Events, Mastery, Self-Esteem, and Social Support, to the Time of Initiation into Prenatal Care by Adolescents.

1986 Post-Masters Certificate in Nursing Management,
Loma Linda University, Loma Linda, California

1984 Master of Science in Nursing
Loma Linda University, Loma Linda, California

1982 Bachelor of Science in Nursing
Loma Linda University

Professional Experience

1990-present -Asst. Professor of Nursing
University of Hawaii 2528 The Mall
Honolulu,HI 96822

Areas taught: Advance Clinical Practice, Leadership/Management, Maternal/Newborn. Assisted with development of new obstetric course for generic nursing curriculum. Has been course coordinator of 4 different courses, responsible for course planning and operations, faculty orientation, development of course syllabus and evaluation materials. Coordinates biannual conferences on perinatal topics, offered for perinatal nurses, with usual attendances over 100.

1990-present- Staff Nurse - Birth Center
Castle Medical Center
640 Ulukahiki St., Kailua, HI 96734
1990-1992  Staff Nurse – Labor and Delivery
The Queens Medical Center
1301 Punchbowl St., Honolulu, HI 96813

Areas worked: Labor and Delivery, Level 1 and 2 Nursery and Postpartum/GYN. Functioned as co-chair of the quality management committee at Castle Medical Center; directed quality management studies on the nursing unit, serves as a resource for various areas of practice.

1989-present-Perinatal Healthcare Consultants and Quality Systems Management

**Job responsibilities**: President and primary consultant for a variety of specialization areas including: Healthcare program planning and LDR/P design, Medico-legal Obstetrics, Organizational development, Quality Assessment and Improvement, Systems management and team development.

Recent Consulting done:
Medico-legal Research for Mckenzie, Trekker and Fritz law firm (1991)

1987-1989-Director of Maternal/Newborn Nursing
Porter Memorial Hospital
2525 S. Downing St.
Denver, Colo 80210

**Job responsibilities**: Planning, implementing and managing a new 24 bed obstetric/newborn service, including LDR/P design, Level 1 and 2 nurseries, program and business planning, implementation, program monitoring and evaluation, hiring of staff, and negotiation of physician contracts for anesthesia, neonatology and obstetrics. Also assisted in planning an additional 21 bed (LDR) obstetric service and a 30 bed Level 1 and 2 nursery service in a newly built hospital outside of Denver.

1984-86-Asst. Professor of Nursing
Loma Linda University
Loma Linda, Calif. 92350

1980-89-Staff Nurse/ Maternal Child Module (Peds/OB)
Loma Linda University Medical Center
Loma Linda, California 92350
1983-84-Staff Development Instructor
Riverside Community Hospital
4445 Magnolia Ave.
Riverside, Calif 92401

Job Responsibilities: Planning and implementing programs for continuing education for Pediatric and Obstetric nurses. Assistance with hospital orientation for new employees, instruction of CPR, ACLS and community childbirth preparation classes.

Professional Licenses/Certifications
Since
1980 RN # 314088 California
1990 RN # 35182 Hawaii
1980 Basic Cardiac Life Support
   Instructor level 1984-86
1991 Neonatal Advanced Life Support
1982 ASPO certification ( Lamaze Childbirth Education)
1993 AWHONN(formerly NAACOG) Fetal Monitoring Instructor

Publications
Vogler,J.H. and Ratcliffe,C.E., Quality Improvement and Managed Care as Curriculum Elements, Nurse Educator. May/June 1993.


Presentations


"Family Centered Care of Patients at Risk for Preterm Birth: The Impact Of Health Professionals", presented at the conference Preterm Labor and Birth: Maternal, Fetal and Neonatal Implications, Honolulu, HI Sept.9 1993.

"Quality Improvement and Managed Care as Elements of a Baccalaureate Nursing Curriculum", given in Washington DC, June 13,1993.


"Preterm Labor and Delivery; Morbidity Consequences and Nursing Care of the Maternal/Fetal Dyad", Castle Medical Center, Kailua, HI July 1992.


"Single-Room Maternity Care"

"Birth Centers"

Professional Organizations
Since

1982 Sigma Theta Tau -
1984 Vice - Pres. Programs Gamma Alpha Chapter
1984 NAACOG (OB, GYN and Neonatal Nurses) or AWHONN
1993 Research Co-ordinator
1994 Vice-Chair of Hawaii Section
1982 ASPO(American Society for Psychoprophylaxis in Obstetrics)
1990 American Society for Quality Control
1992 Program Co-ordinator-Hawaii Chapter
1988 International Transactional Analysis Association
Addendum

Fluency in Spanish and French

Recent Conferences Attended:

1993- Preterm Labor and Birth, Honolulu (coordinator)
1993- Fetal Monitoring Principles and Practices (for instructors), Albuquerque
1993- Nursing Education Conference, Orlando, Washington and San Francisco.
1993- High risk Fetus and Newborn- Honolulu (coordinator)
1992- Care of the High Risk OB Patient-Honolulu (coordinator)
1992- Anesthesia and Analgesia in Obstetrics( coordinator)
REFERENCES


