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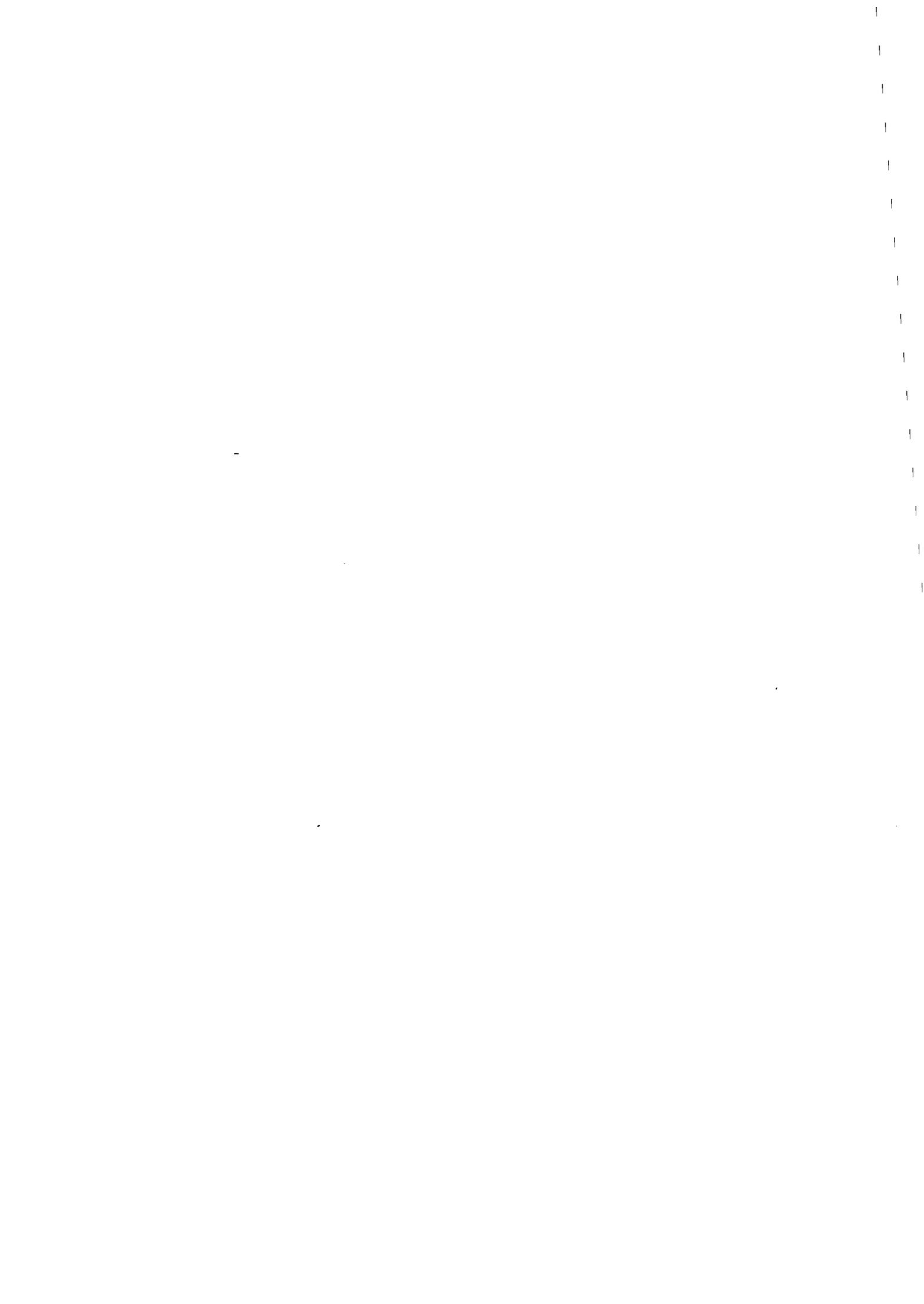
**The effects of stress and marital intimacy on pregnancy and  
birth complications**

Kazama, Sharon Wong, Ph.D.

The University of Arizona, 1987

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THE EFFECTS OF STRESS AND MARITAL INTIMACY  
ON PREGNANCY AND BIRTH COMPLICATIONS

by

Sharon Wong Kazama

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A Dissertation Submitted to the Faculty of the  
DEPARTMENT OF COUNSELING AND GUIDANCE  
In Partial Fulfillment of the Requirements  
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ON PREGNANCY AND BIRTH COMPLICATIONS

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## ABSTRACT

The present prospective longitudinal investigation examined the relationship of life event stress and marital intimacy to pregnancy and birth complications (N = 65). As expected, marital intimacy had a significant buffering effect on stress, but had no relationship with pregnancy and birth complications. In addition, stress levels were not related to pregnancy outcome. Social desirability and conflict resolution on the intimacy measure, as well as ethnicity were significantly related to pregnancy and birth complications. Particular attention is focused on social desirability and its implications for future social support research.

## Chapter I

### INTRODUCTION

Despite recent research efforts, the nature of the relationship among stress, social support and physical health is still unclear. Studies using varied indices of social support have indicated a positive influence social support on health outcome (Cohen and Wills, 1985, Heller, 1986). However, the specific relationship of marital intimacy aspects of support, stress, and health outcome has not been studied in a systematic fashion. It is unclear how marital intimacy functions to facilitate adjustment to life experiences and what aspects of marital intimacy most influence health outcomes.

Addressing the influence of marital intimacy on health may increase the predictive accuracy for individuals at risk and may strengthen existing support for such individuals. Pregnant women constitute a significant population which incorporates this interface of stress, support and health outcomes. Examination of the relationship of stress, marital intimacy and pregnancy outcome appeared to be a promising avenue to extend knowledge of these factors in pregnant women.

In preceding decades, social researchers presented the hypothesis that social and environmental variables were

important risk factors in psychological disorders. It was further asserted that social factors could influence the course and outcome of many disorders. Moreover, it was intimated that sound interpersonal relationships could protect people from the deleterious effects of stress (Caplan, 1974; Cobb, 1976; Dohrenwend, 1978). Concurrently, medical researchers were utilizing epidemiological studies to uncover contributors to pregnancy and birth complications (Ferreria, 1964; Stott, 1976). However, in both fields studies were hampered by retrospectively obtained and methodologically questionable data. Recently, the fields have begun to overlap as scientists have called for research on social support and physiological health (Heller, Swindle, Dusenburg, 1986).

The purpose of this study was to examine the relative influence of stress and marital intimacy and maternal health and pregnancy outcomes. Two contingent questions have guided this investigation:

- 1) Do women who develop pregnancy and birth complications (PBC's) differ from those with normal pregnancy and deliveries in their perceived marital intimacy, and
- 2) How do women who develop pregnancy and birth complications differ from those with normal pregnancies and delivery on a measure of perceived marital intimacy.

## Stress and Health

Stress has been construed and linked in varied ways to health disorders, yet its effect is still unclear. Historically early pioneers recognized the influence of stress on health. Claude Bernard (1813-1928) suggested the importance of the organisms "milieu interne" in adaptation to stress. Observing corresponding bodily changes with emotional change, Walter Cannon (1871-1945) proposed the concept of homeostasis, where the degree of stress experienced is contingent upon the degree of adaptation needed to maintain equilibrium from a stressor agent (Marsella and Snyder, 1981). Furthering this view, Hans Selye (1976) proposed his well known model of stress called the general adaptation syndrome. Briefly, he suggested that stress is actually a set of non-specific physiological reactions to various noxious endogenous or exogenous agents (stressors). An event becomes a stressor whenever an individual's homeostatic balance is disturbed, requiring adaptation. Adolph Meyer in the 1930's advocated the life chart which plotted the life situations, periods of disorder and reactions of patients. Utilizing the chart as a tool for medical diagnosis, Meyer recognized that life events played an important role in the etiology of disorders.

Building on previous formulations, Holmes and Rahe (1976), in their parsimonious model of stress, proposed that

each change in the life of a person required an adaptation, with organisms having a finite capacity for adaptation. If the amount of change in a given time period exceeds the adaptive capacity of the organism, the result is a lowering of bodily resistance and an increase in the probability of disease. Additionally, they proposed that it is not necessarily the negative or undesirable life events that lead to pathology, rather it is simply the amount of change involved. To measure these changes, they devised the social readjustment scale to express quantitatively the total impact of a series of life changes that vary in quality, intensity and frequency. Forty-three events were listed ranging from the normal (i.e. vacation) to the catastrophic (i.e. death of a spouse), from the frequent (i.e. changes in eating patterns) to the rare (i.e. imprisonment), from the desirable (i.e. marriage) to the undesirable (i.e. fired from a job). From these studies they found that life events cluster significantly in the two year period preceding the onset of certain diseases (Holmes and Masuda, 1974).

In the past decade, studies have documented such a relationship between life experiences and physical health (Dohrenwend, 1978, 1983; Holmes and Masuda, 1974; Elliot and Eisdorfer, 1982). Life event stressors, and frequent life changes, have been connected to a variety of illnesses like appendicitis (Creed, 1981), gastrointestinal disorder

(Craig and Brown, 1984), premature labor and/or low birth weight (Newton and Hunt, 1984), tuberculosis (Holmes, et al., 1957), rheumatoid arthritis (Heisel, 1972), leukemia (Wold, 1977), myocardial infarction (Rahe and Paasihivi, 1971; Theorell and Rahe, 1971) and sudden cardiac death (Rahe and Lind, 1971). However several considerations arise in life event studies when dealing with the concept of illness. For example, Imboden and colleagues (Imboden, et al., 1961) suggested possible confounding factors from their work in various infectious diseases. They found that depression stems from motivations to manipulate illness for whatever benefits it can accrue. Differently stated, objective reports of illness may differ from subjective reports of illness.

Another consideration in charting illness is that the onset of disorder is gradual, not an all or none process. A list of life events that occur at the time of the disease onset may be biased toward the symptoms or concomitants of the disorder. For example a major change in eating or sleeping habits is suspect for a wide range of illnesses. Hudgens (1973) found in his use of the Holmes-Rahe scale that 29 of the 43 events were the symptoms of consequences of the illness. Associations then may be due in part to the onset of illness causing certain life events. Moreover, while numerous studies have found significant correlations

between life events and disorders, the correlation of the life event-disorder typically range in value from .17 to .35 (Rabkin and Struening, 1976; Johnson and Sarason, 1978). Clearly, some individuals who experience many negative events do not become ill whereas others who experience very few events become ill. These anomalies require explanation.

Basically three empirical approaches have evolved to increase the predictive value of life experiences for subsequent disorders and to increase our understanding of the nature of such relationships. The first empirical approach sought to clarify the characteristics of life events associated with disorder by assigning dimensional weights to the desirability or undesirability of the event. (Sarason and Johnson, 1979). Controversy remains with some investigators maintaining that a simple account of life events is more parsimonious than utilizing elaborate weighting procedures (Monroe, 1983). Others find the relationship between life events and disorder is primarily a function of negative or undesirable life events (Ross and Mirowsky, 1979; Thoits, 1983).

The second empirical approach focuses on the methodology for arriving at the dimensional weights. Debate centers on the usefulness of weights derived from group averages as opposed to weights derived from individual ratings. Both approaches include disadvantages and

advantages. Normative scores are less likely to be confounded with weightings which are sometimes influenced by knowledge of the disorder. On the other hand, subjective ratings may yield information more clinically useful. Thus, both approaches may uncover different aspects of event disorder association. For example, for a particular study the subjective approach may be more appropriate given certain methodology (i.e. prospective design, multiple regression analysis and cautious inferences).

Finally, attention in life events research has strategically focused on possible moderator variables that may render individuals more or less susceptible to the deleterious aspects of stress (Dohrenwend, 1978; Dean and Lin, 1977). Rahe and colleagues (1974) likened stress to rays of light that passed through a number of filters before reaching the final point of an illness rule. Psychological experiences focus or diffuse the rays; physiological reaction and coping mechanisms further modify the development of illness. Frequently suggested variables for this mediating role are social support, constitutional predisposition, and coping techniques (Johnson and Sarason, 1978; Kobasa, 1979; Pearlin, et al., 1981). The current study addressed social support as a mediating variable in the association between stress and health disorder.

### Social Support and Health

Recently, several investigators have hypothesized that the individual's social support system may help moderate or buffer the effects of life events upon his or her physical health (Antonovosky, 1974; Cassel, 1976; Liem and Liem, 1978; Worden, 1982; Monroe, 1983; Thoits, 1985). This buffering hypothesis suggests that individuals with a strong social support system should be better able to cope with major life changes while those with little or no social support may be more vulnerable to life changes, particularly undesirable ones. This theoretical view suggest that embedded in relationships are basic social interactions that could be health protective and that could encourage adaptation to stressful events. Clearly, this buffering implies an interaction effect: the occurrence of events in the presence of social support should produce less distress than should the occurrence of events in the absence of social support.

Examples of social support findings come from both animal and human studies. Conger and colleagues (1958) have shown that a series of unanticipated electric shocks (given to animals previously conditioned to avoid them) can produce peptic ulcers. The emergence of the ulcers was determined to a large extent by whether the animals were shocked in isolation (higher ulcer rates) or in the presence of litter

mates (low ulcer rates). Another study found that placing mice in intercommunicating boxes linked to a common feeding area created a state of territorial conflict and concomitant hypertension. However, when the system was populated with litter mates rather than "strangers", hypertension did not occur (Henry, 1979). Changes in the quantity and quality of the social environment of animals were shown to be accompanied by significant neuroendocrinal changes affecting the pituitary and the adrenalcortical systems of the thyroid and gonads. This neuroendocrine system largely mediates the balance between the organism and various disease agents (Schoeheiner, 1942).

Analogous to humans, it is suggested that the social milieu can, by altering the endocrine balance in the body, increase the susceptibility of the organism to various stimuli (i.e. disease agents). The reverse is also hypothesized, that by altering the social milieu, one can demonstrate protective factors buffering or cushioning the individual from the physiologic or psychological consequences of exposure. Though extrapolating animal studies to human beings is subject to criticism, human studies have also provided evidence of the effect of social support on health outcome. Initial epidemiological studies proffer this relationship (Broadhead et al., 1983). In several prospective studies, mortality from varied causes was

greater among persons with relatively low levels of social support (Berkman and Syme, 1979). A well known study (Marmot et al., 1975) illustrates this outcome. Marmot was impressed by the finding of the Japanese-Hawaiian-American heart study which showed that the incidence of coronary heart disease was higher in Japanese people living in Hawaii than among those living in Japan, and still higher among those living in California. Furthermore, these differences could not be explained by variations in any of the standard risk factors. He speculated that in the process of migration they may have lost important resources of social support in the face of cultural change. He developed an instrument to measure the extent to which the Japanese men in California had retained traditional Japanese values. He found that the prevalence of coronary heart disease was always higher in those men who had retained less of their traditional cultural matrix.

Another cohort study (Nuckolls, et al., 1972) was concerned with pregnancy complications and assessed major life changes of 170 married primiparas (first-time pregnant women) utilizing the Holmes Rahe scale and their social support system labeled psychosocial assets. They found that the rate of pregnancy and birth complications were three times greater among women with high life stress and low psychosocial assets than women with equally high stress and

high psychosocial assets during early pregnancy (91 percent versus 33 percent). This conclusion is complicated by the fact that social support was embedded in a composite variable that included intrapsychic measures (i.e. self-esteem, personality profiles), interpersonal measures (i.e. degree to which a spouse is available for companionship; number of people one can confide in a trust) and life stress (i.e. financial difficulty; dissatisfaction with work). Additionally, the study defined psychosocial assets as any psychological or social factors which contribute to a woman's ability to adapt to her first pregnancy (Nuckolls, 1972). This study both served as a stimulus for further research into social support and exemplified the problems prevalent in this area.

Although the results of these aforementioned epidemiological studies support the buffering hypothesis, shortcomings undermine conclusiveness. First, many of these studies have varied definitions of social support and correspondingly, differing measuring tools.

Five sometimes overlapping definitions of social support appear in both empirical and theoretical papers: cognitive guidance, social network, tangible assistance, emotional support, and intimacy. The cognitive guidance researchers (Hirsch, 1980; Wellman, 1981; Henderson, 1981) proposed that guidance and information constitute an

essential aspect of support. For instance, Hirsch (1980) noted that satisfaction received with the cognitive guidance was related to fewer psychiatric symptoms in recent young widows and in mature women returning to college.

The second category, social network, refers to a sense of social integration from belonging to a set of friends and on being involved in neighborhood or common activities (Lin et al., 1979; Henderson, 1981). For example, Berghorn and Schaefer (1979) found that socializing decreased the impact of physical and functional impairment in the adjustment of the elderly. Recently, Cohen and colleagues (1985) followed 133 urban elderly adults living in single room occupancy hotels. Their findings indicated that the extent of patients social networks combined with current physical health status significantly predicted their future health status. Moreover, this prognostic variable was found to be especially powerful for highly stressed patients.

Tangible assistance, the third category of support, is construed to be concrete assistance and the knowledge that network members will respond with physical help (Barrera, 1981; Wellman, 1981; Berghorn and Schaefer, 1979; Dean and Lin, 1977, 1981). For instance, Schaefer and others (1981) found that tangible support and emotional support in addition to certain life events were correlated with

depression and negative morale. Interestingly, tangible and emotional support were found to be independent of each other.

A fourth category, emotional support, was defined as stability and comfort or being loved and cared for by dependable relationships (Caplan, 1974; Cobb, 1974; Henderson, 1980). For instance, Cobb (1974) and Gore (1978) found that men who received high levels of emotional support from family and friends following the closing of their factory showed lower levels of physiological problems than did those with low levels of support. Interestingly, in another study of physical outcome, Holahan and Moos (1985) found that support in the family environment operated as a stress resistant factor for women but not for men.

The fifth category of support seems to overlap with the fourth category, but refers more specifically to one individual. This support factor is labeled intimacy and is defined as a close interpersonal relationship with a confidante (Henderson, 1981; Miller and Lefcourt, 1982, 1983; Waring 1980). This aspect of support will be further elaborated as the focus of this investigation.

The aforementioned conceptualizations and studies imply that support is a multi-categorical concept. Not only the amount of support, but the types of support, the sources of support and the process of support (i.e. not all sources

and types of support are equally effective) can be considered. Furthermore, variations exist in conceptualizing and operationalizing the support construct. Support has been construed as including composites or combination of intrapsychic measures (i.e. self esteem with personality profiles), interpersonal relationships (i.e. number of people one can trust), degree of community involvement and often life strains (financial difficulty, dissatisfaction with work or neighborhood) (Myers, 1975; Eaton, 1978; Brown, et al., 1978). Thoits (1982) convincingly argued for more simplistic definitions and concrete operationalizations that look at the nature and process of support in relation to health.

In addition to conceptual and operational problems on the buffering hypothesis, a methodological problem plagues the literature: The direct effect of life events on support and the interactive effect of life events may be confounded (Thoits, 1982). An examination of life events measures revealed that many important events are interpretable as losses or gains of supportive relationships (i.e. death of spouse, divorce, marriage, birth, pregnancy, conflict with co-workers). Some life experiences themselves may be conceptually or operationally identical to some aspects of social support. At the same time, life events may induce changes in the social support system as well (Depue and

Monroe, 1986). For example, pregnancy and birth may cause some friends and relatives to rally and others to move away. Support then may be a product of or operationally identical with the occurrence of life experiences. Looking at it methodologically, if a four cell table is used, the substantial difference between cell c (high life change, low support) and d (high support, high life change) may be attributed to systematic classification of respondents as unsupported or supported as a result of prior undesirable or desirable experiences. As such, confirmation of the buffering hypothesis may then be unwarranted.

Perhaps even more of a consideration is the controversy over the role that social support may play in precipitating disorder. While the buffering hypothesis predominates, (Brown & Harris, 1978; Nuckolls, Cassel and Kaplan, 1972; Wilcox, 1981), some investigators maintain that support deficits may contribute to disorder independently of other psychosocial stressors (i.e. life events) (Andrews, Tennant, Hewson and Vaillant, 1978; Lin, Simeone, Ensel and Kuo, 1979; Thoits, 1982). Clearly two research perspectives are at hand: one looks at the protective aspect of support with respect to the deleterious affect of life events, the other looks at the lack of support contributing to disorder independently of life events.

Given these considerations, social support studies suffer from shortcomings in conceptualization, operationalization and methodological approaches of social support. Yet taken as a whole, the literature points to social support contributing independently or interactively as a buffer to life events in relation to health. Despite these varied support studies, few investigations have attempted to systematically identify the protective elements of social support in relationship to physiological health (Broadhead et al., 1983). Epidemiological studies have indicated that married individuals are healthier than single, separated, divorced or widowed individuals, presenting lower rates of acute illnesses and lower absences from work (Verbogree, 1979). Lowenthal and Haven (1968) in their analysis of interaction and adaptation in later stages of the life span, were struck by the fact that the healthiest among them often seemed to be people who were or had been involved in one or more close relationships.

Since then, two studies have noted a relationship between having an available confidante and health status. Medalie and Goldcourt (1976) completed a five year prospective study of the development of new angina pectoris cases among 10,000 married men forty years of age and over in Israel. In addition to assessing certain physiological risk factors pertinent to heart disease each subject was

asked the following question: Does your wife show you her love? The response was rated dichotomously. Despite high levels of anxiety, serum cholesterol and the presence of electrocardiograph abnormality, the risk of angina pectoris was reduced from 93 to 52 per 1,000 if the respondent reported having a loving, supportive wife.

Similarly, an investigator exploring the individual's responses to bereavement has noted that widows and widowers with only superficial relationships with friends and other relatives showed a significantly higher risk of illness and mortality than those who developed close relationships with others after the loss (Lynch, 1977). Moreover, Helsing and colleagues (1981) found that mortality among widowers, in certain age groups, was increased for 12 years. This mortality rate fell to expected levels for those who remarried but was especially high among those who moved into nursing homes. Explanations of this phenomena tend to focus on marriage as providing a confidante. This assumption, of course, can be called into question. Studies utilizing marital status have mistakenly assumed that the married are uniformly supported. The lower rates of illness in the married population might have been more explanatory if support had been explored and more predictive of health disorders if more finely delineated. Syme (1974) in his review of studies linking disease mortality and marital status

called for more detailed examinations of marital status and its varied disease components to develop insights about social processes and health outcome. Cohen and Wills (1985) in their review more emphatically cited the lack of research on social support and physiological outcome. They called for research that elucidates the processes of social support. Increasingly, support research is moving away from a structural conception and toward functional perspectives.

Following the general line of inquiry described above, this investigation focused on the quality and intensity of social support: specifically, marital intimacy.

Surprisingly there is a paucity of reference to the quality of relationships in the social support literature. Research has been concerned more with the quantitative or structural indicators: i.e. how many friends, how much time is spent in interaction with others and what is the status of that relationship. Kessler and colleagues (1985) in a review interestingly noted that people when asked in the abstract how they would support a person in crisis, appeared to know what to do, but, in reality, support attempts were often ineffective. They also called for studies of interactions between supporters and recipients that would elucidate the characteristics of support.

Largely on the basis of clinical insights, psychoanalysts have stressed the capacity for intimacy (Bowlby, 1958;

Ferreira, 1964). One of the fundamental precepts of Angyal's theory (1965) is that "existing in the thought and affections of another and the maintenance of such a close relationship is the crux of our existence from the cradle to the grave".

Maslow (1962) synonymously refers to intimacy when he cites the need for love or affection and belonging in his hierarchy of needs. Love, as Maslow uses the word, is not to be confused with sex which can be studied as a purely physical need. "Ordinarily, sexual behavior is multidetermined . . . not only as sexual but by other needs that among which are the love and affection needs". He agrees with Carl Rogers' definition of love as "that of being deeply understood and deeply accepted". Sullivan (1953) through his interpersonal theory likewise asserted the need for intimacy or collaboration with at least one person. According to Ferreira (1964), Sullivan's assertion remained marginal to the mainstream of psychiatric thought because it never outlived its more prosaic connotations. Erickson (1950) postulated the capacity for intimacy as one of the major developmental tasks in life. He saw it as the foundation from which belonging and trust develop.

Recently, Gilbert (1976) succinctly defined intimacy as the "depth of exchange both verbally and non-verbally between two individuals which implied a deep form of

acceptance to the other as well as a commitment to the relationship". Gilbert (1976) further postulated several conceptual links to intimacy. He proposed that the level of acceptance, commitment, self-esteem and conflict resolution ability exerts a significant influence on the level of intimacy.

Olsen (1975) was the first to conceptualize the process aspects of intimacy by distinguishing between an intimate experience and an intimate relationship. He defined an intimate experience as a feeling of closeness or sharing with another in one or more of seven areas of intimacy: emotional, social, intellectual, sexual, recreational, spiritual, aesthetic. An intimate relationship included intimate experiences over a period of time. Later, Whitbourne and Weinstock (1979) more succinctly defined intimacy as the combination of a sense of mutuality, sensitivity to the partner's needs, physical closeness, willingness to share, and openness or lack of defensiveness with the partner. Adults in an intimate relationship not only retain their individual uniqueness outside the union, but also remain strongly committed to their relationship. Waring and colleagues (1983) examined more specifically the psychosocial process within a marital relationship which led to the identification of eight distinct components of marital intimacy: conflict resolution, affection, cohesion,

sexuality, identity, compatibility, autonomy, and expressiveness. A scale of social desirability was included to control for response style.

Defining marital intimacy as this multifaceted dimension, Waring paved the way for more empirical investigation of intimacy phenomena. The present study subscribed to Waring's definition in investigating intimacy and health.

The few studies that looked at the marital relationship but not specifically intimacy suggested that marital pathology is linked to physical disorder. Minuchin (1974) has identified marital maladaptions in the families of children with anorexia nervosa. Similarly, Burke and colleagues (1977) demonstrated that Type A coronary-prone behavior correlated with fewer positive marital interactions, more disagreements and less marital satisfaction with their spouse tending to show depression, anxiety and guilt. Looking at medical compliance, Hoebel (1977) was the first to identify that altering the spouse's behavior might increase compliance in the treatment of myocardial infarction. A very recent longitudinal prospective study (Mermelstein et al, 1986) suggested that high levels of partner support and the perceived availability of general support were associated with cessation of smoking and short-term abstinence.

There have been structural studies on stress and marital support but the dependent variable has almost unanimously been depression outcome. Significant buffering interactions were found for those psychological outcomes (Eaton, 1978, Kessler, 1982).

Four recent studies looked specifically at intimacy and health.

Two functional studies on stress and intimacy, using college students and pregnant women respectively, showed no correlation with life events and physical symptomatology. Additionally there was no main effect for support on physical outcome. However, Cohen and Hoberman's (1983) study of college students found a buffering effect for physical symptoms. Norbeck and Tilden (1983) reported neither psychological nor physical buffering effects.

Miller and Lefcourt (1983) found that undergraduates lacking current intimate ties were prone to higher levels of emotional disturbance especially when many previous negative or few positive life events had occurred. Waring (1983) found that adult psychosomatic patients have marriages which appear superficially adjusted but reveal a deficiency in interpersonal intimacy. Such couples were found also to have deficiencies in socializing and initiative and were often isolated from extra-familial contact.

These aforementioned studies began to differentiate the source, nature, and degree of social support. Such specifications will illuminate how social relationships function to facilitate health or which aspects of the support system are the most effective buffers against life event stress. As Wellman (1981) succinctly commented, not all social ties possessed by individuals are necessarily supportive. Furthermore, several investigators have asserted (Roscow, 1967; Arth, 1962; Blau, 1981) that depth of intimacy, as well, is a key correlate in a person's ability to adapt over the lifespan.

#### Intimacy and Pregnancy and Birth Complications

One juncture in the life span that requires adaptations with health consequences is that of pregnancy and birth. Approximately half of pregnant women experience pregnancy and birth complications in the U.S. of which approximately 18 percent can be predicted by medical risk factors (Collaborative Study by the Perinatal Research Branch and National Institute of Neurological Diseases and Blindness, 1966). Psychologists have become increasingly interested in the relationship of the psychological processes of the pregnant woman to complications of pregnancy and birth. Briefly, it is proposed that pregnant women experiencing undue stress are often labeled as manifesting

negative emotionality or anxiety predisposing them to pregnancy and birth complications (Ferreira, 1965; Grimm, 1967; McDonalds, 1968). Investigation in this area is also propelled by the consistent link between pregnancy and birth complications and developmental disorders in the child (Pasamanick et al., 1955, 1956, 1966). Further investigations in this continuum of reproductive casualty have implied that parent-child interaction may be negatively affected by pregnancy and birth complications (Pilowsky, 1972; Goth-Owens, 1982).

For example, Field and colleagues (1985) found that mothers who had experienced pregnancy problems were more depressed, anxious and "externalizing" during post partum and expressed more punitive child rearing attitudes as well as fewer optimal interaction behaviors.

The exact biological process by which anxiety affects pregnancy is not medically clear. Regardless of the ultimate ontogeny of autonomic response specificity, it is evident that various physiological components assume possible differential importance in mediating obstetric complications such as protracted vomiting (hyperemesis gravidarum), abnormal smooth muscle contractility (habitual abortion), and arterial hypertension (pre-eclampsia). High anxiety was the common denominator which differentiated the complication groups from the normal groups in a review on pregnancy

abnormalities (McDonald, 1968). For example, Wolkins (1974) observed that women with high prenatal anxiety experienced more medical and psychiatric symptoms during pregnancy than did women with low prenatal anxiety. As part of a larger project investigating prenatal factors in child development, Davids and his associates (1961) administered a battery of psychological tests to 48 indigent women. Following delivery, pregnancy outcome was "blindly" classified as normal or abnormal on the basis of hospital records. The authors reported that the abnormal group obtained significantly higher mean anxiety scores and tended to be relatively higher on a TAT-derived alienation syndrome, characterized by egocentricity, pessimism, distrust, and resentment, than did the normal group. Although the groups were not matched for other potentially relevant variables (marital status, gravidity, etc.), similar findings were replicated in a follow up test utilizing similar methodology and better controls.

In another study by Edwards and Jones (1970) fifty three unmarried pregnant women were administered a psychological test battery at the beginning of the third trimester. Recognizing the potential influence of point in time at which assessment is made, the State Anxiety Inventory was administered on a weekly basis thereafter until entering the hospital for delivery. In contrast to earlier

findings, Edwards and Jones were unable to demonstrate that women who were later to have obstetric complications reported higher anxiety levels.

These aforementioned studies demonstrated more methodologically sound procedures. Except for one study, psychological differences were consistently found between mothers whose pregnancies were complicated and those whose pregnancies were normal. Those differences tended to appear regardless of whether the direct outcome referred to specific complications (i.e. vomiting, toxemia, habitual abortion) or to a composite of complications. The psychological characteristic which most often differentiated complicated versus normal pregnancy was anxiety. Studies of psychological involvement in pregnancy point to anxiety as the most discriminating measure for presaging complications of pregnancy (Ferreira 1965; Davids et al., 1961; Erickson, 1965). McDonald (1968) in a review of emotional factors in obstetric complications summarily stated that anxiety might be regarded as a necessary condition for the development of complications, with overwhelming intensity or duration being the sufficient condition.

The idea that anxiety is involved in pregnancy has been further refined. Studies have examined life events, a specific form of anxiety contributing to pregnancy complications. These studies assessed such stress in terms of the

amount of change accruing in the subject's life either prior to and/or during a pregnancy. Norbeck and Tilden (1983) indicated that stress before pregnancy showed a main effect for only one of four indexes of complications. Analyses of stress during pregnancy indicated no main effects. Reviewers have questioned the methodological soundness because of the 206 variables utilized (Cohen and Wills, 1985). Conflicting results have been obtained in examining the role of life event stress in the development of complications. Chalmers (1979) and Nuckolls (1972) have found no general relationship between life changes and pregnancy and obstetrical complications. However, Newton and Hunt (1984) in their study of pregnant women found that any additive major life events measure was predictive of premature labor and low birth weight. In addition, the authors found that the number of events or unit events had a more significant association with low-birth weight than subjective major events. Nuckolls (1972) and Williams (1975) have reported that in the absence of social support, pregnancy complications may have been associated with high life changes. While the value of other variables such as nutrition and health care are routinely incorporated into preparation for pregnancy, the source and nature of good interpersonal relationships as support has yet to be clearly defined. Nuckolls et al. (1972) utilizing a composite score indicated that the

perception of interpersonal support by pregnant women appears to buffer the potential effects of high life change. One study to date has looked at social support as an independent contributor. However, Norbeck and Tilden (1983) in their analyses of stress during pregnancy found no main effects of stress nor support and interactions of stress with support were nonsignificant for overall complications. Interestingly, their informational and support scales were so highly correlated that they were analyzed as a single measure. Chalmers (1976) further suggested that social support must not only be present but effective in quality. It is evident in the literature that the respective roles of life event stress and marital intimacy in the development of pregnancy complications have yet to be completely described.

Summarizing the literature on stress, social support and health provides data which indicate consistent relationships in some areas, inconsistency in others, and sometimes definite paucity. As far as stress is concerned, there is a consistent but small relationship between life events and physiological health in the few studies that have been done. The presence of a moderator variable, social support, appears as a contributing factor in the predictability of physiological health but methodological shortcomings undermine conclusiveness. Unclear is whether social support contributes as an interacting and/or independent

variable to physical health. Also unclear is how intimacy functions as support to contribute to health outcome. A small relationship emerges between stress and pregnancy and birth complications but mediating variables are open to question. More specifically, no study to date has systematically explored the relationship of life event stress, marital intimacy and pregnancy and birth complications.

### Hypotheses

In view of the literature cited above regarding relationships among stress, intimacy, pregnancy and birth complications, the following hypotheses were formulated:

- 1) There will be a positive relationship between stress, and pregnancy and birth complications as measured by the Life Experience Survey and medical records.
- 2) There will be a relationship between marital intimacy, and pregnancy and birth complications as measured by the Waring Intimacy Questionnaire and medical records.
- 3) There will be a significant interaction of stress and intimacy on pregnancy and birth complications such that the strength of the relationship between stress and pregnancy and birth complications will be lower when intimacy is high than when intimacy is low. In other words, higher levels of intimacy will moderate

the effects of stress as measured by the Waring Intimacy Questionnaire, the Life Experience Survey and medical records.

In sum, it is predicated that intimacy will have an independent as well as moderating role in the stress-health relationship. Thus, intimacy is an important variable in times of increased stress (interactive effect) and also has a relationship to health separate from stress levels (independent effect).

Of secondary interest is the possible effect of ethnicity, age, length of marriage, and medical factors on pregnancy and birth complications.

Of further interest is the possible effect of the eight components of marital intimacy: conflict resolution, affection, cohesion, sexuality, identity, compatibility, autonomy, and expressiveness plus the social desirability scale on pregnancy and birth complications.

## CHAPTER II

### METHOD

This chapter describes the subjects, the measures utilized, and the procedures employed in this investigation.

#### Subjects

Subjects for the study were 65 primiparas (first time pregnant women) from the obstetric and gynecology department at Kaiser Permanente Group Hospital in Honolulu, Hawaii. These married clients ranged in age from 19 to 34 years. The sample consisted of multi-cultural middle-class women with little variance in socio-economic status (middle class according to hospital records).

The sample of 65 primiparas resulted in the following demographic data: the mean age was 26.22 years, the mean length of marriage was 2.45 years, and 75 percent of the respondents had one year or more of college. The ethnic breakdown was as follows: part Hawaiian, 15 percent; Japanese, 18 percent; Caucasian, 40 percent and others, 23 percent.

Volunteers who were in their first to third month of pregnancy were sought through maternal health nurses. They were given a letter briefly describing the research as a study of stresses that they experienced before, during and after pregnancy. They were subsequently asked for their

voluntary participation and consent in responding to the questionnaires. Each participant utilized their medical record number and all forms were identified by this number. They were instructed that all responses would be strictly confidential.

### Measures

The following constitutes a brief description of the instruments utilized in this study.

#### Life Experiences Survey (LES)

This is a 60-item self-report inventory (Sarason, Johnson and Siegal 1978) which measures life event stress from the degree of change resulting from events experienced in the subjects' personal lives. A modified version as utilized by Crnic and colleagues (1983) was used. Respondents were asked to indicate 1) events experienced during the recent past; 2) whether they perceive the events as desirable or undesirable; and 3) the impact they perceived each event exerted on their lives. By summing separately the impact ratings of undesirable and desirable events, it is possible to obtain separate impact scores for positive and negative life events. Negative life events (LES) are more consistently correlated with stress related variables than are positive events and thus were used rather than the positive rating. Possible scores range from 0 to 232.

Unit (LES-number) scores can also be obtained by counting only the number of events that occurred rather than the degree of impact. The LES has been shown to have moderate to good test retest reliability especially for the negative change score ( $r=.63$  to  $.64$ ). Construct validity has been demonstrated in correlations with a variety of outcome measures. The LES scores also showed no relationship to social desirability (Sarason, Johnson and Siegal, 1978; Christensen, 1978).

#### Waring Intimacy Questionnaire (WIQ)

The WIQ (Waring and Redden, 1983) is a 90-item true-false, construct-oriented inventory consisting of eight content scales and a social desirability scale. The WIQ is scored and interpreted along eight components of marital intimacy: conflict resolution, affection, cohesion, sexuality, identity, compatibility, autonomy and expressiveness. The desirability scale was included to control for a tendency to choose the more socially desirable response. A global index of intimacy is based on the sum of the eight content scales. The social desirability scale score is subtracted from the total index for the intimacy score.

The sequential strategy employed in the construction of the WIQ yielded scales which are minimally redundant, highly reliable (test, retest reliability for scales from

.73 to .90), free from response bias and free from sexual bias (Table 1).

#### Medical Records

This is an ongoing record for documenting the health of the patients. It is compiled by physicians and the nursing staff of Kaiser Permanente Group. In this study it is used to measure pregnancy and birth complications (PBC's), (Table 2). Pregnancy outcome was rated dichotomously with the presence of one or more complications.

#### Measurement of Demographic Variables

A personal information sheet was also included to ascertain the demographic characteristics of the subjects. These included age, education, number of years married, and ethnicity. A dichotomous yes or no response was requested on the following medical factors: smoking, alcohol use, drug use, and chronic diseases.

#### Key Operational Definitions

The following were key operational definitions utilized in this study:

- 1) Stress: an index of the negative life change scores of the Life Experience Survey (Appendix D).
- 2) Intimacy: the total score of the Waring Intimacy Questionnaire (Table 1).

3) Pregnancy and Birth Complications: one or more complications from the criteria for complications (Table 2).

Table I

Waring Intimacy Questionnaire Scales

Marital Intimacy Scales	Description
1. Conflict Resolution	Ease with which differences of opinion are resolved.
2. Affection	Degree to which feelings of emotional closeness are expressed by the couple.
3. Cohesion	Expression of commitment and the primacy of the marital relationship.
4. Sexuality	Degree to which sexual needs are communicated and fulfilled by the marriage.
5. Identity	Couple's level of self-confidence and self-esteem.
6. Compatibility	Degree to which couple are able to work and play together comfortably.
7. Autonomy	Couple's attitude toward interpersonal relationships outside marriage, including parents, children, and friends, and the quality of these relationships.
8. Expressiveness	Sharing of private thoughts, beliefs, and attitudes, as well as capacity to communicate about the relationship.
9. Social Desirability	Tendency to respond desirably.

## Table II

### Glossary of Pregnancy and Birth Complications

- |   |  |
|---|--|
| 1. A systolic blood pressure during pregnancy of over 139 mm or a diastolic blood pressure of over 89 mm or systolic elevation of more than 30 mm ie. one of these in combination with proteinuria. | The pressure of blood on the walls of the artery dependent on the energy of the heart action, and the elasticity of the walls of the artery. Proteinuria is the finding of protein in urine. |
| 2. Admission to the hospital for hyperemesis:   | Hyperemesis - Excessive vomiting.  |
| 3. Threatened abortion:   | Abortion - Premature expulsion from the uterus.  |
| 4. Admission to the hospital for eclampsia:   | Preclampsia - During late pregnancy the findings of hypertension, edema, proteinuria. When convulsions and coma are present it is termed eclampsia.  |
| 5. Premature rupture of the membrane for more than 24 hours before delivery; the absence of cephalo-pelvic disproportion: See number 6.   |  |

Table II (continued)

Glossary of Pregnancy and Birth Complications

6. Prolonged labor. First stage longer than 20 hours or the second stage longer than 150 minutes in the absence of cephalo-pelvic disproportion:

Cephalopelvic disproportion - The size of the baby and if head is larger than what the mother's pelvis can accommodate.

7. Apgar rating of infant less than reported infant respiratory distress in absence of cephalo-pelvic disproportion:

Apgar - Assessing condition of newborn usually at 60 seconds after birth of heart rate, respiratory extent, muscle tone, reflex irritability, color.

8. A systolic blood pressure of over 139 mm and/or a diastolic blood pressure over 89 mm during both the labor and post-partum periods.

9. Birthweight of less than 2500 grams.

10. Abortion, stillbirth or neonatal death within the first three days.

## Procedures

As subjects indicated their willingness to participate they were asked to complete: a letter of consent, a demographic sheet, the Life Experiences Survey and the Waring Intimacy Questionnaire (Appendix). After the questionnaires were obtained, their medical records were classified normal versus complicated pregnancy by the Department of Medical Records at Kaiser Permanente Group Hospital and supervised by the Director of Medical Records.

A sample timeline of a recruited primipara was as follows:

### Month 1-3

1. Primipara contacted by maternal health nurse at initial maternal health visit.
2. If primipara volunteers, she signs a consent form to be contacted by researcher.
3. Researcher calls participant, explains the study and answers any questions.
4. If participant agrees to participate in study, she is sent within a week a letter of consent, a demographic sheet, the LES and the WIQ to be returned within the week.
5. If questionnaires were not returned within the week, participant is called and reminded.

#### Month 4-9

1. Researcher scores and records data.
2. List of participants' medical record numbers are sent to Director of Medical Records.

#### Month 9-12

1. Medical Record personnel score for pregnancy outcome.

#### Limitations of this Study

There are several considerations or threats to the internal validity of this study. As is usual for all longitudinal and prospective studies, this study used a time one measure for the independent variable and a time two measure for the status. Within the nine months duration, the participants might have been subject to other life events as well as fluctuations in the level of intimacy that might have contributed to PBCs.

Another limitation was the effect of maturation. Change, physiological as well as psychological, is characteristic of pregnancy. Developmental processes that are not accounted for by stress and intimacy might have contributed to pregnancy outcome.

Because self-report inventories and questionnaires were utilized in this study, they may be subject to reactive measurement. More specifically, the WIQ focused entirely on

the marital relationship which might have modified the marital behavior under study.

There were several limitations or threats to external validity of this study. Volunteers were from one hospital such that an "experimentally accessible population" rather than a random population of primiparas were utilized. This factor might restrict generalization of this study.

The nature of this research called for self report on personal history and perceived marital interactions. Consequently, this study was subject to the different factors of the Hawthorne effect: demand characteristics, evaluation apprehension and social desirability (Huck, Cormier and Bounds, 1974).

Lastly, outcome data was scored by an independent experimenter as opposed to the investigator. However, it was possible that the investigator unintentionally might have modified the subject's response to the questionnaires when explaining the study to a potential participant.

#### Method of Analyses

In order to examine the effects of stress, intimacy and the stress by intimacy interaction on pregnancy and birth complications, a hierarchical regression model was employed:

- 1) Life events was entered first because previous studies indicated a small but significant relationship between stress and health. This addressed the first hypothesis regarding the relationship between stress and PBC's.
- 2) Intimacy as a supposed moderator of stress was entered next. This addressed the second hypothesis regarding the relationship between intimacy and PBC's.
- 3) The interaction variable of stress and intimacy was entered last. This addressed the third hypothesis regarding the buffering effect of intimacy.

A closer examination of the interaction effect was warranted due to lack of significance in the first analysis on marital intimacy, stress and complication variables. Of secondary interest was the possible effect of ethnicity, age, education, and length of marriage as well as the components of marital intimacy on the strength of pregnancy and birth complications. An analysis of variance of PBC's by ethnicity was run. A correlation analysis was performed between PBC's and the remaining variables. This was done by examining the correlations among the variables.

Given the significance of the two variables, social desirability and ethnicity, two more analyses were run to substantiate the findings. A hierarchical regression was run

with ethnicity entered first and social desirability entered second. The entry order was established to determine the extent to which the relationship between social desirability and PBC's was independent of ethnicity.

## CHAPTER III

### RESULTS

This chapter describes the results of this investigation. Of the 65 primiparas 32.2 percent evidenced pregnancy and birth complications. The mean for the LES was 15.65 (S.D. = 12.91). The mean scores for the WIQ were 24.81 (S.D.= 4.24) for PBC .32 (S.D.= .47). The mean number of stressful life events experienced was 5.65 (S.D.= 4.95). See Tables 3 and 4 for demographic and WIQ scale means.

The results are reported separately for life events (LES), marital intimacy (WIQ), life events (LES) X Marital Intimacy (WIQ) and demographic variables.

#### Life Events

To test whether there was a relationship between stress and pregnancy and birth complications, a hierarchical regression was performed with LES as an independent variable and PBC's as the dependent variable. When LES was entered into the hierarchical regression analysis there was no relationship between LES and PBC's  $F(1,59) = .19$ , n.s. (Table 5). The results disconfirmed the prediction of a positive relationship between life stress and pregnancy and birth complications. A subsequent analysis found no relationship between the LES unit events and PBC's  $F(1,59) = .35$ , n.s. (Table 6). Inspection of the LES "intensity"

means revealed that those with PBC's had a mean of 14.57 (S.D. = 15.46) and those with no PBC's had a mean of 16.11 (S.D. = 11.82). LES unit means for PBC's were 6.21 (S.D. = 7.04) and for no PBC's 5.40 (S.D. = 3.80).

To test for the possible effects of the components of marital intimacy a zero order correlation matrix was utilized with the major study variables, demographics and WIQ scales (Table 7). A significant negative correlation was found between LES and the social desirability scale of the WIQ  $r = .26$   $p < .05$ . Inspection of the LES unit measure revealed  $r = -.14$   $p < .25$ . This provocative finding raised the question of response style inflating LES scores.

Table III

Demographic Characteristics of Primapara Sample (N = 65)\*

Variable	Label	Range	Mean	Standard Deviation
Age (years)		19-34	26.21	4.41
Duration of Marriage (years)		.25-12	2.45	2.31
			N	Percent
Educational Level				
	K - 8		1	2
	9 - 12		14	21
	13 - 16		31	48
	16+		18	28
Ancestry				
	part-Hawaiian		10	15
	Japanese		8	23
	Caucasian		26	40
	Other		13	20
	Smoke cigarettes a pack a day + ?		0	0
	Drink alcohol daily?		0	0
	Non medical drug use?		1	1
	Chronic diseases?		4	6

\* variability of N due to missing data

Table IV

## Means and Standard Deviations for Major Variables

Variable	Label	N*	Mean	Standard Deviation
WARING1	CONFLICT RESOLUTION	65	6.83	2.47
WARING2	AFFECTION	65	8.29	1.38
WARING3	COHESION	65	7.43	1.55
WARING4	SEXUALITY	65	6.61	1.85
WARING5	IDENTITY	65	7.55	2.51
WARING6	COMPATIBILITY	65	7.87	2.02
WARING7	AUTONOMY	65	8.13	1.85
WARING8	EXPRESSIVENESS	65	8.43	1.54
WARING9	DESIRABILITY	65	5.92	3.24
INTSCORE	INTIMACY SCORE (W/OUT DESIRABILITY)	65	24.81	4.24
LES	NEG EVENTS: DEGREE	63	15.65	12.91
LES (UNIT)	NEG EVENTS: NUMBER	63	5.65	4.95
WARTOT	INTIMACY SCORE PLUS DESIRABILITY	65	30.73	5.57

\* variability of N due to missing data

Table V

Hierarchical Regression of Complication by Stress (LES)  
and Intimacy (WIQ)

Source	SS	DF	MS	F
LES (number, degree)	0.040	1	0.040	0.19 n.s.
WIQ	0.248	1	0.248	1.17 n.s.
LES X WIQ	0.464	1	0.464	2.19 n.s.
ERROR	12.516	59	0.212	

Table VI

Hierarchical Regression Complication by Stress (LES, unit)  
and Intimacy (WIQ)

Source	SS	DF	MS	F
LES-UNIT (number)	0.074	1	0.074	0.35
WIQ	0.420	1	0.420	1.96
LES-UNIT X WIQ	0.145	1	0.145	0.68
ERROR	12.630	59	0.214	

### Marital Intimacy

To test whether there was a relationship between marital intimacy and pregnancy and birth complications the WIQ intimacy score was entered into the hierarchical regression analysis. There was no relationship between WIQ and PBC's, disconfirming an independent effect  $F(1,59) = 1.17$  n.s. However, on the correlation matrix there was a significant relationship between the Total WIQ (inclusive of the S.D. scale) and PBC's,  $r = .29$   $p < .01$  which again underscored the prominence of the social desirability factor (Table 7). The means for the WIQ subscales for the group with complications, without complications and the publisher's norms are shown in Table 11.

Inspection of the individual WIQ scale scores (conflict resolution, affection, cohesion, sexuality, identity, compatibility autonomy, expressiveness and social desirability) revealed that two scales were significantly correlated with PBC's: 1) social desirability,  $r = .30$   $p < .05$  and 2) conflict resolution  $r = .24$   $p < .05$ .

The significance of conflict resolution might be construed as artifact as the social desirability factor was prominent and its effect could only be factored out from the total score, not for scale scores. The correlation between social desirability and conflict resolution was  $.38$   $p < .001$  further supporting the likelihood of a social desirability influence.

Table VII  
Pearson Correlation Coefficient Matrix of Major Variables

	WARING9 DESIRABILITY	INTIMACY	LES	COMPLIC	LES UNIT	WARTOTAL w/desirability
WARING1 CONFLICT RESOLUTION	0.47796 0.0001 65	0.54579 0.0001 65	-0.45404 0.0002 63	0.24882* 0.0456 65	-.034430 0.0057 63	0.69407 0.0001 65
WARING2 AFFECTION	0.42499 0.0004 65	0.54407 0.0001 65	-0.29920 0.0172 63	0.06831 0.5887 65	-0.21379 0.0925 63	0.66195 0.0001 65
WARING3 COHESION	0.35787 0.0034 65	0.10709 0.3959 65	-0.08410 0.5122 63	0.12728 0.3123 65	-0.07638 0.5518 63	0.28977 0.0192 65
WARING4 SEXUALITY	0.32413 0.0084 65	0.13519 0.2829 65	-0.09909 0.4397 63	0.00137 0.9914 65	-0.15597 0.2222 63	0.29158 0.0184 65
WARING5 IDENTITY	0.19138 0.1267 65	0.62871 0.0001 65	-0.33706 0.0069 63	0.20279 0.1052 65	-0.25663 0.0423 63	0.59061 0.0001 65
WARING6 COMPATIBILITY	0.52586 0.0002 65	0.53056 0.0001 65	-0.32423 0.0095 63	0.09133 0.4693 65	-0.17706 0.1651 63	0.71613 0.0001 65
WARING7 AUTONOMY	0.39196 0.0012 65	0.33466 0.0064 65	-0.25790 0.0413 63	0.19846 0.1130 65	-0.15528 0.2243 63	0.48310 0.0001 65
WARING8 EXPRESSIVENESS	0.38211 0.0017 65	0.46812 0.0001 65	-0.26188 0.0381 63	0.23570 0.0587 65	-0.16419 0.1985 63	0.57912 0.0001 65
WARING9 DESIRABILITY	1.00000 0.0000 65	0.09082 0.4718 65	-0.26450 0.0362 63	0.30287* 0.0142 65	-0.14452 0.2585 63	0.65083 0.0001 65
INTSCORE INTIMACY SCORE (W/O DESIRABILITY)	0.09082 0.4718 65	1.00000 0.0000 65	-0.4036*** 0.0010 63	0.15507 0.2174 65	-0.29890 0.0173 63	0.81520 0.0001 65
LES-BD BAD EVENTS: DEGREE (STRESS)	-0.26450* 0.0362 63	-0.40361 0.0010 63	1.00000 0.0000 63	-0.05496 0.6688 63	0.88208 0.0001 63	-0.46219 0.0001 63
COMPLICATIONS	0.30287 0.0142 65	0.15507 0.2174 65	-0.05496 0.6688 63	1.00000 0.0000 65	0.07478 0.5603 63	0.29437* 0.0173 65
LES-BN BAD EVENTS: NUMBER	-0.14452 0.2585 63	-0.29890 0.0173 63	0.88208 0.0001 63	0.07478 0.5603 63	1.00000 0.0000 63	-10.3148** 0.0127 63

\* p < .05  
\*\* p < .01  
\*\*\* p < .001

### Marital Intimacy as Buffer to Life Events

To test whether there would be a significant interaction of stress and intimacy on pregnancy and birth complications, LES X marital intimacy was entered into the hierarchical regression analyses for PBC's. There was no relationship ( $F(1,59) = 2.19, n.s.$ ) which appeared to disconfirm the prediction. However, inspection of the correlation matrix revealed a significant negative correlation between LES and WIQ  $r = -.40 p < .001$  confirming a hypothesized relationship between stress and marital intimacy (Table 7). In other words, higher levels of intimacy indicated lower levels of stress. Thus intimacy did moderate stress. The lack of significant interaction to PBC's can be attributed to the lack of relatedness between stress and PBC's.

### Demographics

To test for the possible effects of demographic variables on PBC's age, length of marriage, and length of education were correlated with PBC's. There was no significant relationship between the variables and PBC's. An analysis of variance was run on ethnicity because of its categorical status. The effect of ethnicity was statistically significant ( $F(3,55) = 3.23 p < .05$  (Table 8)). A Duncan's Multiple Range Test indicated that Native Hawaiian

ethnic group experienced a significantly greater amount of PBC's as compared to the other ethnic groups (Table 9). Given the ethnicity significance, an anova analyses on ethnicity and desirability was performed. Ethnicity was not correlated with desirability,  $F(3,59) = .83$  n.s. (Table 10). This finding ruled out the possibility that the Native Hawaiian group predominantly reflected the social desirability factor.

Medical factors were not entered due to the lack of variability of responses. There was virtually zero yes responses to questions on smoking, alcohol, drug use and previous medical conditions.

Table VIII  
 Hierarchical Regression on Complications  
 by Ethnicity, and Social Desirability

Source	SS	DF	MS	F VALUE	PR > F
ETHNICITY	1.784	3	0.593	3.23*	0.0294
SOCIAL DESIRABILITY	0.871	1	0.871	4.73*	0.0340
SOCIAL DESIRABILITY X ETHNICITY	1.202	3	0.400	2.17	0.1014
ERROR	10.14	55	0.184		

\* p < .05

Table IX  
 Duncan's Multiple Range Test  
 for Ethnic Variable: Complications

Alpha=0.05 DF=55 MSE=0.184379

Means with same letter are not significantly different.

Duncan Grouping	Mean	N	Ethnic Code	Ethnicity
A	0.7000	10	7	Part-Hawaiian
B	0.3333	15	13	* Other
B	0.2692	26	2	Caucasian
B	0.1667	12	8	Japanese

\* Other: Mexican/Slavonian, Filipino, Chinese, Indian, Korean, American Indian, Iranian  
 Ethnic categories collapse because of small n.

### Social Desirability

Because of the prominence of the social desirability factor and the significance of the ethnicity factor a hierarchical regression was performed (Table 8). Ethnicity was significantly related to PBC's. ( $F(3,55) = 3.23$   $p < .05$ ). Social desirability was significantly related to PBC's.  $F(1,55) = 4.73$   $p < .05$ . The interaction of social desirability and ethnicity was not significant.  $F(3,55) = 2.17$  n.s. Therefore social desirability and ethnicity are independent contributors to PBC's. Inspection of the social desirability mean for women with complications was 7.33 (S.D. = 3.01), with no complications 5.25 (S.D. = 3.16) and the WIQ norm mean was 5.12 (S.D. = 3.46) (Table 11). Thus, the levels of social desirability of the pregnant women with no complications and the publishers norm group were almost identical. Furthermore, the level of social desirability for the primiparas with complications was significantly higher compared to the other two groups.

Table X

## Anova of Social Desirability Scale Score by Ethnicity

Source	SS	DF	MS	F VALUE
ETHNICITY (Native Hawaiians)	25.800	3	8.600	0.83
ERROR	610.200	59		

Table XI

WIQ Means and Standard Deviations of  
Complications, No Complications and Norms

Scales	Complications		No Complications		WIQ Norms	
	Mean	SD	Mean	SD	Mean	SD
CONFLICT RESOLUTION	7.71	1.98	6.41	2.59	7.87	2.38
AFFECTION	8.43	1.43	8.23	1.38	7.87	1.91
COHESION	7.71	1.49	7.30	1.58	7.41	2.01
SEXUALITY	6.62	1.56	6.61	2.00	6.51	1.94
IDENTITY	8.29	2.15	7.20	2.62	7.03	2.31
COMPATIBILITY	8.14	1.98	7.75	2.06	7.45	2.27
AUTONOMY	8.66	1.49	7.89	1.97	7.86	1.73
EXPRESSIVENESS	8.95	1.07	8.18	1.67	8.54	1.74
DESIRABILITY	7.33	3.01	5.25	3.16	5.12	3.46
TOTAL INTIMACY	33.10	4.75	24.36	4.51	30.37	6.00
TOTAL INTIMACY MINUS DESIRABILITY	25.76	3.54	29.61	5.63	25.25	4.27

## CHAPTER IV

### DISCUSSION

Did the stress level of the pregnant women influence pregnancy and birth complications? Did the level of intimacy influence pregnancy outcome? Did intimacy moderate stress? Furthermore, were there differences in the demographics and in the intimacy components that predicted pregnancy outcome?

To investigate these questions, measures of stress, marital intimacy and pregnancy and birth complications were collected from a sample of 65 married primiparas. As expected, marital intimacy had a significant buffering effect on stress but had no relationship with pregnancy and birth complications. In addition, stress levels were not related to pregnancy outcome. However, social desirability and conflict resolution as well as ethnicity (Native Hawaiian) were significantly related to pregnancy and birth complications.

#### Implications

The research findings indicated several conceptual and methodological implications for each area. They are addressed in the following subject order: stress, marital intimacy, conflict resolution, social desirability and ethnicity.

### Life Event Stress

Several theoretical and statistical considerations arise from the lack of significant findings of stress on PBC's. The relationship between stress and symptomatology has historically been small. The present life event finding was congruent with major pregnancy studies (Nuckolls et al, 1972, Williams et al, 1975 and Chalmers, 1982). Generally results for more homogeneous populations tend to be less marked than those found with general population samples where there is a considerable range of stress. Except for ethnicity this sample was decidedly homogeneous by age, sex, socio-economic status, parity and lack of previous medical risk factors.

A second consideration was possible confounding due to the level of social desirability seen in the WIQ scale. The development of the LES included a study of the possible effect of social desirability utilizing the short-form of the Marlowe-Crowne Social Desirability Scale (Strahan and Gerbasi, 1972). Correlations between negative and unit scores and social desirability were .05 and .01, respectively. This suggested that responses to the LES were relatively free from the influence of social desirability. However, as noted in this study, there was a significant negative correlation between LES and S.D. ( $r = -.26$   $p < .05$ ). When the LES unit measures were analyzed with social

desirability ( $r = -.14$   $p < .25$ ) there was no relationship. This finding indicated higher stress, lower desirability, and lower stress, higher desirability with subjective scores. The social desirability factor appeared to wash out when only LES unit scores were analyzed. This evidence supported Cobb's (1974) finding that pregnant subjects scoring high on a measure of denial biased life event measures. As such, response bias involving denial or social desirability may significantly influence the validity of subjective life event scores. In other words, women with complications who significantly indicated a social desirable response set might be as likely to deny factors contributing to a level of higher stress.

Another theoretical consideration emerged from the findings. The lack of relatedness between life events and pregnancy outcome suggested that life event stress may not be reflective of anxiety and/or is a different type of stress. This finding supports Gorush and Key's (1974) suggestion that anxiety and life events are independent contributors to health outcome. Perhaps life event stress measured in the present study reflects more external life stress rather than a subjectively experienced internal state of anxiety. Researchers have presumed that accumulated numbers of stress events reflect anxiety. However, the pregnant women's constitutional make-up and appraisal of the

events may determine the anxiety not the events themselves. The creators of the life event scales like the one used in this study have incorporated subjective weight scores to account for this appraisal and anxiety (Sarason, Johnson and Siegal, 1978). Further stress research might consider that even subjectively weighted life event scores might not reflect the anxiety link to physiological disorder. This consideration might even be more salient should the subject respond in a socially desirable way. Furthermore, this disparity between life events and anxiety might account for the historically small or lack of relationship between life events and physical outcome.

Another consideration involves the time relation of life events to pregnancy outcome. Perhaps the preceding two years inclusive of the first trimester were not the critical points to assess life events. Newton and Hunt (1984) found that life stress was predictive of low birth weight babies only from events during the third trimester. It would seem that future research utilizing life events need to center on the later trimester as contemporary life events may be more critical than past events for presaging pregnancy and birth complications.

### Marital Intimacy

Researchers have very recently called for studies on the marital relationship, citing it as a major source of

support (Lieberman, 1986). However, this study did not reveal an independent relationship between marital intimacy and PBC's. This finding was congruent with the one study that also investigated marital support and low birth weight infants (Norbeck and Tilden, 1983).

Several considerations may account for this finding. An explanation may be that spousal support may not account for enough of the variance with other factors like genetics, and psychological traits coming into play, even though medical risk factors were elicited to screen for spurious effects.

A conceptual consideration may be that although a marital partner can be a major support provider, he or she can also be a source of interpersonal stress (Coyne and DeLongis, 1986). As such the adaptation to pregnancy calls for readjustment of that primary relationship (ie. from twoness to threeness, career and time constraints). It was noted that when social desirability was not subtracted from the WIQ total score there was a positive correlation with PBC's. Perhaps including that scale would provide the "true" measure of marital intimacy. Further elaboration is forthcoming under social desirability.

As relationships are fluid over time, this marital intimacy variable like stress was constrained by the time one measure and time two measure of status. However,

repeated measures of intimacy during the gestational period might better illuminate the pattern of intimacy during the three trimesters.

### Conflict Resolution

Although level of intimacy appeared unrelated to pregnancy outcome, two scales were significantly associated with pregnancy and birth complications: conflict resolution and social desirability.

Conflict resolution was defined as the level of ease with which differences of opinion are resolved. The results indicated that the greater the ability to resolve marital conflict the more likely pregnancy complications would occur. This finding appeared incongruous to the theoretical hypothesis. However, when one noted the effect of social desirability, one might attribute its significance to an inflated positive portrait of the relationship. For example, primiparas with complications tended to respond as true on the WIQ "I don't think any one could live together with greater harmony than my mate and I". The elevated presence of conflict resolution among the WIQ scores might indicate a key issue to address in pregnancy counseling.

### Social Desirability

Statistically, if all the scores of all the pregnant women were uniformly inflated or decreased by social

desirability, it would make no impact on interpreting scores since rank order and position in a distribution are unaffected (Gordon and Gross, 1978). It is only when social desirability affects individuals differentially that it became a source of distortion. In this study, the level of social desirability significantly differentiated those with PBC's from those without. Higher social desirability scores were found for those with PBCs. It has also permeated this research and brought to light a psychological characteristic of primiparas at risk. The term social desirability is most closely identified with the work of Edwards (1957), who examined its effects on the Minnesotal Multiphasic Personality Inventory (MMPI). It is a phrase used to describe a tendency to distort self-reports in a favorable direction. Social desirability may be seen as a property of scales or it may be seen as an individual difference variable. One school views S.D. as a threat to accurate assessment which should be controlled (Linehan and Nielson, 1981; Rock, 1981; Sarason, Levine, and Busham, 1983). An equally vociferous school suggested that such a dimension is more substance than style (McCrae and Costa, 1983). Moreover, they deny a correlation between social desirability and content scales indicates a need for control.

This research took a middle ground: that social desirability can be a psychological or personality

characteristic, if you will, which manifests itself in a response style. To control or ignore its presence would deny potentially rich clinical material.

Historically, several thinkers have considered social desirability; Freud saw the unconscious as a central component and suggested defense mechanisms derived from anxiety. Sartre, (1942, 1966) used the term "mauvais fois" literally "bad faith" and figuratively equated social desirability with self deception (Paulhaus, 1987). Sackiem and Gur (1978) aptly used the term self-deception to describe social desirability. They held that self-deception was a necessary condition for repression and anxiety. They listed four criteria of self-deception: (a) the individual holds two contradictory beliefs; (b) the two beliefs are held simultaneously; (c) the individual is not aware of holding one of the beliefs and (d) the unawareness of one belief is motivated (Sackiem and Gur, 1978). An analogy could be made with a typical response from a primipara who had pregnancy and birth complications: "My mate has all of the qualities I have always wanted in a mate" juxtaposed with "My mate does not have all the qualities I have always wanted in a mate." As such, the level of social desirability which goes beyond an optimistic outlook and toward self-deception and anxiety presages pregnancy and birth complications for the primipara.

The level of self deception reflects the level of anxiety of the pregnant women (Breen, 1975). Within certain limits, anxiety might serve as a signal light for the individual to deal with stress whether it be the marital relationship or an impending birth. For example, the pregnant woman with a challenging career might worry about the level of emotional or concrete support from her spouse after the birth of the child. She may discuss her concern with him for concrete reassurance and resolution or choose to "not think about it". Clinical observers have noted that pregnant women with unresolved conflicts whether they be interpersonal or intrapersonal remain markedly anxious during pregnancy (Breen 1975, Carlson and La Barbara, 1979). However, denial so pervasive as to ignore warning signals like worry, might lead to unsuccessful adaptation such as pregnancy and birth complications.

Clinicians who work with pregnant women might note that those who profess that everything is extremely positive may ironically be those who are most at risk for pregnancy and birth complications.

It appeared that denial or social desirability was a non-adaptive coping mechanism of the pregnant woman with complications. On a conceptual level, the findings of social desirability to perceived marital intimacy support Thoits (1984) contention that social support researchers

should begin integrating their work with investigations of coping processes or psychological traits - the opposite side of the social support coin. In other words, the data suggested that the manner in which primiparas strive to adapt may be as important as the quality of marital support they perceive from their spouses in presaging disorder.

Several researchers have investigated stress-resistant personality characteristics. In her study of male urban lawyers, Kobasa (1981) introduced the hardiness concept of commitment, challenge and control as stress resistance behavior. However, Schmied and Lawler (1986) in their study of secretaries and hardiness found that hardiness did not generalize to women.

The data of this research indicated that women who do not evidence high social desirability were more resistant to pregnancy complications. In other words, those women who revealed a clear, more truthful picture of their marital relationship fared better in health outcome. Differently stated, this psychological trait of accuracy or honesty about their level of marital intimacy might be a stress resistant resource. Furthermore, researchers may do well to investigate the interface of the level of marital intimacy (support) and the level of social desirability (coping or psychological mechanisms) on health outcome.

### Marital Intimacy as a Buffer to Life Events

Marital intimacy appeared to moderate stress. This finding is congruent with the majority of studies defining a confidante as the source of support (Cohen and Wills, 1985). Confirmation of the axiom that a good marital relationship helps mitigate life stress is welcomed as another possible vehicle in the health prevention armamentarium. However, interpretation must be made with caution. First, it must be noted that optimal methodology was employed including a prospective longitudinal design, time appropriate measures, regression analyses, reliable and valid measures, and medical screening factors. The level of stress was not significantly associated with complications. Yet, there was a significant negative correlation between stress and support indexes. This inverse relationship indicated that if there were a correlation between LES and PBC's, then a pure interaction effect would have occurred. In other words, high stress with high intimacy would be significantly associated with the no complication group. However, a negative correlation may also be interpreted as indicating some confounding of stress and support measures (Berkman, 1979; Thoits, 1982). For example, conflict with a husband cited as a negative life event and lack of support from a husband may well stem from the same set of circumstances. Additionally, as always, there could be a third "phantom"

variable rather than marital intimacy, such as religious beliefs to explain resilience to stress.

Another theoretical issue arises with respect to the emergence of the moderating effect of intimacy as opposed to the independent effect. Perhaps spousal support has differential effect on differential stress. This research indicated that marital intimacy perhaps lowers external stress events but not the kind of internal stress that perhaps emanates from the relationship. For example, a death of a parent may be a stress event where marital support from the spouse can be effective. However, when the stress comes from the primary support, the spouse, or in the context of the relationship such as the level of self-deception about the marriage, then different mechanisms may need to be addressed.

Future researchers might delineate types of life events into categories like financial, physical illness, work related and marital related. Secondly, the perceived marital intimacy measure should be accompanied by a measure that delineates social desirability as well as other psychological or coping mechanisms of the subjects. The role of psychological or coping mechanisms in the development, maintenance and utilization of marital intimacy represents another area of consideration in delineating the process of social support. Stated differently, researchers might

examine the effect of the intrapersonal on the interpersonal in relation to health outcome.

### Ethnicity

Primiparas that were Native Hawaiians were significantly more subject to pregnancy and birth complications. This finding was consonant with an on going health trend of the Native Hawaiians. In general, Native Hawaiians experience a lower life expectancy than other ethnic groups in Hawaii. This was attributed to both a higher rate of accidental deaths as well as a greater risk of significant illnesses. Their infant mortality rates are higher than other groups as are congenital abnormalities and underweight infants (Native Hawaiian Health Research Consortium, 1985). Perhaps like the Japanese in Marmot's study, (1975), the Native Hawaiians have retained less of their traditional culture matrix with negative consequences.

### Conclusions

It has been suggested that an "unhappy marital relationship is a disability, analogous to economic deprivation, or physical illness (Renne, 1970). This research supported and further refined that premise. The results point strongly to the association between primiparas' level of social desirability and pregnancy and birth complications. Those who painted an inflated portrait of their marriage

were more susceptible to pregnancy and birth complications. The anxiety generated by self-deception or denial may negatively impact on pregnancy outcome. More positively phrased: those who painted a more accurate portrait of their marital relationship were healthier in their pregnancy outcome. The marital relationship as a major source of support in health outcome has been underscored, linking biological processes with social processes (Lieberman, 1986).

On the other hand, one must be wary of oversimplification of marriage as a key modifier of stress. Evidence from this research indicated that perceived marital intimacy was an effective buffer specific to external life stresses. However, when marital intimacy reflects a high sense of social desirability, or self-deception about the marriage, the spousal support itself might be the stressor not the modifier.

Researchers would do well to differentiate levels of intimacy, levels of social desirability and stresses in assessment periods throughout the gestational stages. This differentiation would chronologically pinpoint possible contributors to pregnancy outcome. Additionally, this study was limited to the primipara's perception of marital intimacy. It would be enlightening to include the husband's perception of the relationship.

This research also supported the importance of differentiating types of stress (i.e. work, kin, financial, marital), as suggested by Thoits (1982). If the measure of support is marital intimacy, the research should be accompanied by a measure that differentiates social desirability as well as other psychological or coping mechanisms of the subjects. The data indicated those women who revealed a more truthful picture of their marital relationship fared better in health outcome. Other psychological characteristics may illuminate the interplay of the perceived components of marital intimacy and health outcome. In other words, social support researchers need to examine what kind of support processes work with what kind of psychological characteristics to enhance physical well being.

Ethnicity was also a predictor in pregnancy and birth complications with higher risk for Native Hawaiian primiparas. This finding called for continued inclusion of the multi-cultural factor in bio-social research as an indicator for needed social programs.

In terms of intervention, previous studies have shown that support from other sources cannot compensate for a poor marital relationship (Kaplan and DeLongis, 1983). There is also general agreement that in the continuum of reproductive casualties, parent-child interactions may be affected by pregnancy (Goth-Owens, et al, 1982; Field et al, 1985).

The far reaching consequences of unsuccessful adaptation not only in pregnancy and birth, but in marriage can only be underscored by the effects of birth defects or divorce on children (Wallerstein and Kelly, 1980).

Medical factors can only predict a small percentage of pregnancy and birth complications (Nuckolls et al, 1972). This research has indicated that predictability can be increased by marital assessment at the first trimester. Furthermore, the level of social desirability and secondly, conflict resolution of the pregnant woman and her husband may be key issues for pregnancy adaptation. Such findings illuminate the need for more detailed studies of the role of psychological or coping mechanisms in the development, maintenance and utilization of marital intimacy and its effect on physiological well being.

APPENDIX A

SOCIAL DESIRABILITY ITEMS

FROM THE WARING INTIMACY QUESTIONNAIRE

I don't think any couple could live together with greater harmony than my mate and I.

I have some needs that are not being met by my marriage.

My mate has all of the qualities I have always wanted in a mate.

My marriage is not a perfect success.

My marriage could be happier than it is.

I have never regretted my marriage not even for a moment.

I don't think anyone could possibly be happier than my mate and I when we are with one another.

There are times when I do not feel a great deal of love and affection for my mate.

There are some things about my mate that I do not like.

Every new thing I have learned about my mate has pleased me.

APPENDIX B

AGREEMENT TO PARTICIPATE IN  
PREGNANT WOMEN PROJECT

Sharon Wong Kazama, 4329 Papu Circle, Honolulu, HI 96816

Thank you for agreeing to participate in this medical research project by filling out these questionnaires on events in your life. We are investigating stress and support factors of pregnant women. This will further our knowledge and enable better care and services to the pregnant woman.

Some questions may appear personal to you, please be assured that we are investigating pregnant women in general. The strictest confidentiality will be upheld, no names will be used and only your medical record number will be required for reference to your medical history.

There will be no payment or compensation for participation in this research study, but the general results of the research will be made available to you. As usual care for illness or injury will be provided to members of Kaiser Foundation Health Plan, Inc., in accordance with the terms of the Health Plan coverage. Should you have questions or comments, you may write to me at the above address.

I certify that I have read and understand the foregoing, 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 anytime without prejudice.

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

\_\_\_\_\_  
Signature of Individual Participant

Date \_\_\_\_\_

If you cannot obtain satisfactory answers to your questions, or have comments or complaints about your treatment in this study, please write to: Chairman, Institutional Review Board, Kaiser Foundation Hospital, 1697 Ala Moana Boulevard, Honolulu, HI 96815.



## APPENDIX D

Medical Record No. \_\_\_\_\_

Date: \_\_\_\_\_

### LIFE EXPERIENCES SURVEY Irwin Sarason & James Johnson

#### Instructions

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

Rate each event that occurred in your life in the past two years, as Good or Bad (circle which one applies).

Show how much the event affected your life by circling the appropriate statement (no effect - some effect - moderate effect - great effect).

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

Event	Type of Event	Effect of Event on Your Life			
1. Getting Married	Good Bad	no effect	some effect	moderate effect	great effect
2. Detention in jail or other institution (you or anyone close to you)	Good Bad	no effect	some effect	moderate effect	great effect
3. Major change in sleeping habits (much more or much less sleep)	Good Bad	no effect	some effect	moderate effect	great effect
4. Death of close family member					
(a) parent(s)	Good Bad	no effect	some effect	moderate effect	great effect
(b) child	Good Bad	no effect	some effect	moderate effect	great effect
(c) another child	Good Bad	no effect	some effect	moderate effect	great effect
(d) brother or sister	Good Bad	no effect	some effect	moderate effect	great effect
(e) husband/male partner	Good Bad	no effect	some effect	moderate effect	great effect
(f) grandparent(s)	Good Bad	no effect	some effect	moderate effect	great effect

Event	Type of Event	Effect of Event on Your Life			
(g) other (specify)	Good Bad	no effect	some effect	moderate effect	great effect
5. Major change in eating habits (much more or much less food intake)	Good Bad	no effect	some effect	moderate effect	great effect
6. Foreclosure on mortgage or loan	Good Bad	no effect	some effect	moderate effect	great effect
7. Death of close friend	Good Bad	no effect	some effect	moderate effect	great effect
8. Outstanding personal achievement	Good Bad	no effect	some effect	moderate effect	great effect
9. Trouble with police (you or anyone close to you)	Good Bad	no effect	some effect	moderate effect	great effect
10. Change in your work situation (different work responsibility, major change in working conditions, working hours, etc.)	Good Bad	no effect	some effect	moderate effect	great effect
11. New job for you	Good Bad	no effect	some effect	moderate effect	great effect
12. Serious illness or injury of close family member					
(a) parent(s)	Good Bad	no effect	some effect	moderate effect	great effect
(b) child	Good Bad	no effect	some effect	moderate effect	great effect
(c) another child	Good Bad	no effect	some effect	moderate effect	great effect
(d) brother or sister	Good Bad	no effect	some effect	moderate effect	great effect
(e) husband/male partner	Good Bad	no effect	some effect	moderate effect	great effect
(f) grandparent(s)	Good Bad	no effect	some effect	moderate effect	great effect
(g) other (specify)	Good Bad	no effect	some effect	moderate effect	great effect

Event	Type of Event		Effect of Event on Your Life			
	Good	Bad	no effect	some effect	moderate effect	great effect
13. Sexual Difficulties	Good	Bad	no effect	some effect	moderate effect	great effect
14. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
15. Trouble with in-laws	Good	Bad	no effect	some effect	moderate effect	great effect
16. Major change in financial status (a lot better off or a lot worse off)	Good	Bad	no effect	some effect	moderate effect	great effect
17. Major change in closeness of family members (increase or decrease in closeness)	Good	Bad	no effect	some effect	moderate effect	great effect
18. Gaining a new family member (through birth, adoption, family member moving in, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
19. Change of residence	Good	Bad	no effect	some effect	moderate effect	great effect
20. Separation from husband or male partner (due to conflict)	Good	Bad	no effect	some effect	moderate effect	great effect
21. Major change in church activities (increased or decreased attendance)	Good	Bad	no effect	some effect	moderate effect	great effect
22. Reconciliation (making up) with husband, partner, or boyfriend	Good	Bad	no effect	some effect	moderate effect	great effect
23. Major change in number of arguments with husband, partner or boyfriend (a lot more or a lot less)	Good	Bad	no effect	some effect	moderate effect	great effect
24. Change in husband or partner's work (loss of job, beginning new job, retirement, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
25. Major change in usual type and/or amount of recreation	Good	Bad	no effect	some effect	moderate effect	great effect

Event	Type of Event		Effect of Event on Your Life			
	Good	Bad	no effect	some effect	moderate effect	great effect
26. Borrowing more than \$10,000 (buying home, business, medical bills, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
27. Borrowing less than \$10,000 (buying car, TV, getting school loan, medical bills, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
28. Losing your job.	Good	Bad	no effect	some effect	moderate effect	great effect
29. Not having enough money to take care of baby properly.	Good	Bad	no effect	some effect	moderate effect	great effect
30. Major personal illness or injury	Good	Bad	no effect	some effect	moderate effect	great effect
31. Major change in social activities, e.g., parties, movies, visiting	Good	Bad	no effect	some effect	moderate effect	great effect
32. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
33. Divorce	Good	Bad	no effect	some effect	moderate effect	great effect
34. Serious injury or illness of close friend	Good	Bad	no effect	some effect	moderate effect	great effect
35. Son or daughter leaving home	Good	Bad	no effect	some effect	moderate effect	great effect
36. Completion of your schooling	Good	Bad	no effect	some effect	moderate effect	great effect
37. Your dropping out of school	Good	Bad	no effect	some effect	moderate effect	great effect
38. Separation from husband or partner (due to work, travel, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect

Life Experience Survey, Page 5		Type of Event		Effect of Event on Your Life			
Event		Good	Bad	no effect	some effect	moderate effect	great effect
39.	Engagement	Good	Bad	no effect	some effect	moderate effect	great effect
40.	Breaking up with boyfriend/ girlfriend	Good	Bad	no effect	some effect	moderate effect	great effect
41.	Leaving home for the first time	Good	Bad	no effect	some effect	moderate effect	great effect
42.	Reconciliation with boyfriend/girlfriend	Good	Bad	no effect	some effect	moderate effect	great effect
43.	Your having problems in school	Good	Bad	no effect	some effect	moderate effect	great effect
<u>Other recent experiences which have had an impact on your life. List and rate.</u>							
44.	_____	Good	Bad	no effect	some effect	moderate effect	great effect
45.	_____	Good	Bad	no effect	some effect	moderate effect	great effect
46.	_____	Good	Bad	no effect	some effect	moderate effect	great effect

APPENDIX E

WARING QUESTIONNAIRE

FORM 90

*Edward M. Waring, M.D.*

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INSTRUCTIONS

There are 90 statements in this booklet. They are statements about marriages. You are to decide which of these statements are true of your marriage and which are false. Make all your marks on the separate answer sheets. If you think the statement is TRUE or mostly TRUE of your marriage, make an X in the box labeled T (true). If you think the statement is FALSE or mostly FALSE of your marriage, make an X in the box labeled F (false).

Remember, we would like to know what your marriage seems like to YOU. So DO NOT try to figure out how your spouse will see your marriage, but DO give us your general impression of your marriage for each statement.

EXAMPLE:

I enjoy spending time with my spouse  
answer: true

T	x	
F	-1-	

1. Differences of opinion never lead to verbal abuse in our relationship.
2. I am at my best when we are together.
3. Without my marriage my life would lack meaning.
4. I ask my spouse for the things that really turn me on.
5. I often feel insecure in social situations.
6. I wish my spouse enjoyed more the activities that I enjoy.
7. I enjoy spending time with my in-laws.
8. If there is one thing that my spouse and I are good at, it's talking about our feelings to each other.
9. I don't think any couple live together with greater harmony than my mate and I.
10. Our differences of opinion lead to shouting matches.
11. I always kiss my spouse good-bye.
12. Our marital satisfaction is more important than career decisions.
13. Sometimes sex seems more like work than play to me.
14. Compared to other people that I know I lack self-esteem.
15. We seem to work out how to share the chores at our house.
16. Whenever we visit my spouse's parents, I feel awkward because I have nothing to talk about.
17. Often I only pretend to listen when my spouse talks.
18. I have some needs that are not being met by my marriage.
19. Discussing problems with my spouse seldom leads to arguments.
20. I feel that there is a distance between my spouse and I.
21. I value our marital relationship above all else.
22. I think that the importance of sex is highly over-rated in marriage.
23. I have a strong sense of who I am.
24. My spouse and I share the same philosophy of life.
25. My in-law's advice is often appreciated and welcome.
26. I prefer to keep my personal thoughts to myself.
27. My mate has all of the qualities I have always wanted in a mate.
28. Old wounds are always reopened when we have differences of opinion.
29. Despite being married I often feel lonely.
30. Even in marriage everyone has to look out for themselves.

31. Sex with my spouse has never been as exciting as in my fantasies.
32. I really don't think that I am very good at most things.
33. My spouse frequently helps when I am doing an unpleasant chore.
34. When all the relatives get together, I feel awkward and uncomfortable.
35. I enjoy sharing my feelings with my spouse.
36. My marriage is not a perfect success.
37. Yelling and screaming play no part in our attempts to resolve our conflict.
38. I often tell my spouse I love him/her.
39. When one gets married, it's forever.
40. Our personal closeness is the major determinant of how satisfactory our sexual relationship is.
41. I feel that I am the person I would like to be.
42. My spouse and I share the same goals in life.
43. We are lucky to have relatives to whom we can go for help.
44. I always try to give my spouse my full attention when he/she is talking to me.
45. My marriage could be happier than it is.
46. When there is a difference of opinion, we tend to negotiate a resolution rather than fight.
47. We always do something special on our anniversary.
48. In our marriage we try to live by the principle "all for one and one for all"
49. Our sexual relationship decreases my frustrations.
50. I am embarrassed when I am the center of attention.
51. My spouse and I like to do things for self-improvement together.
52. It is a real effort for me to try and get along with my spouse's parents.
53. I often read the newspaper or watch T.V. when my spouse is trying to talk to me.
54. I have never regretted my marriage not even for a moment.
55. I never hit below the belt when we argue.
56. I will never use my love for my spouse as a way to hurt him/her.
57. I am not prepared to put up with my spouse's annoying habits.
58. My marriage could not possibly be happy without a satisfactory sexual life.
59. When I compare myself to most other people, I like myself.
60. My spouse and I have worked out the male-female household roles to both our satisfaction.

61. I feel that my parents interfere in our relationship.
62. I would lie to my spouse if I thought it would keep the peace.
63. I don't think that anyone could possibly be happier than my mate and I when we are with one another.
64. When we have differences of opinion, my spouse never walks out of the house.
65. I am often unfriendly towards my spouse.
66. I don't really care whether my spouse supports me or not, just as long as he/she lets me lead my own life.
67. I always seem to be in the mood for sex when my spouse is.
68. I am sometimes afraid that people will see a part of me that I am not aware of.
69. My spouse did not try to make me change after we got married.
70. Family reunions are one highlight of our social life.
71. My personal secrets would hurt my spouse.
72. There are times when I do not feel a great deal of love and affection for my mate.
73. During our arguments I never try to deprecate my spouse's point of view.
74. Love is being able to say you're sorry.
75. I would be willing to compromise my beliefs to make our marriage better.
76. My spouse rarely turns away from my sexual advances.
77. There are many aspects of my personality that I do not like.
78. I found it difficult to make changes in my lifestyle after we were married.
79. Our children interfere with the time we have together.
80. I can say anything I want to my spouse.
81. There are some things about my mate that I do not like.
82. Sometimes I think all we ever do is argue.
83. Buying gifts shows my affection for my spouse.
84. Most of the time at home I feel like I am just killing time.
85. Our sexual relationship influences our level of closeness.
86. Other people usually have more to offer in a conversation than I do.
87. My spouse's sociability adds a positive aspect to our relationship.
88. Our marriage would be better if our parents didn't meddle in our problems.
89. I always take time to listen to my spouse.
90. Every new thing I have learned about my mate has pleased me.

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