THE EFFECTS OF HOSPITAL EXPERIENCE ON POSTPARTUM FEELINGS AND ATTITUDES OF WOMEN

by

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Abstract

The purpose of this investigation was twofold. First, to investigate the attitudes and feelings of a group of normal women expecting their first child. Second, to evaluate the effectiveness of a family centred maternity programme in promoting a positive feeling towards the infant and in terms of preparing the mothers for their new role.

The subjects were 94 married women who attended prenatal classes with their husbands. They were white, caucasian, with a mean age of 27 years and a mean level of education of 14 and one half years. The women were raised in North America or the British Commonwealth. All women delivered a single full term infant and experienced no major medical complications of either themselves or their infant during pregnancy, delivery or the postpartum period.

Each woman completed a series of questionnaires relating to attitude towards pregnancy, labour and delivery, childbirth, the new baby and the hospital experience. These measures were completed at four points in time; in the ninth month of pregnancy, while in hospital and after one and five weeks at home. In addition, she completed the Depression Adjective Checklists, the Beck Depression Index and the Pleasant Events Schedule in the ninth month of pregnancy and in the sixth week after delivery of her child. The Depression Adjective Checklist was also completed each day that the woman was in hospital.

Major comparisons were (a) type of maternity hospital programme experienced — a family centred maternity programme versus a more traditional maternity programme and (b) type of delivery — whether vaginal or caesarian. Multivariate analyses conducted on the set of variables at each time period revealed a significant difference between the two groups of women depending upon which hospital programme they experienced, both while in hospital and after they had been home for one week. Univariate analyses revealed significant difference between the two groups on their responses to the following variables:

The women in the family centred maternity programme had a more positive attitude towards their babies while in hospital; considered that they received more experience in how to care for their babies in hospital and perceived that they obtained more help from the hospital in preparing them for their mothering role. There was no difference in attitude towards the baby once the women had been home for one week caring for and interacting with their babies. A repeated measures analysis of variance indicated that there were no differences in the level of depressive affect between the women in the two types of programme over the time periods involved.

Multivariate analyses of the sets of variables at each time period indicated a significant difference between those who had a vaginal delivery and those who had a caesarian section. Those women who had a caesarian section had a less positive attitude towards their labour and

delivery. There was no difference between these two groups of women in either their attitude towards their infant or their feelings of self-confidence. A repeated measures analysis of variance revealed that those women who had caesarians were more depressed after the birth of their baby than those women who delivered their baby vaginally.

Although the women in the present study were not clinically depressed there were significant correlations between levels of depressive affect and other variables. For example, in the ninth month of pregnancy depressive affect was related to a less positive attitude towards pregnancy; in hospital depressive affect was related to a less positive attitude towards labour and delivery and towards the baby; at six weeks postpartum depressive affect was related to a less positive attitude towards the baby.

The discussion centred around the implication of the findings for hospital programmes and prenatal class curricula, current behavioural theories of depression,and the myth of maternal instinct.

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GLOSSARY

gravid	pregnant
gravidity	pregnancy
muliparous	having borne more than one child
parity	the fact of having borne living children
parturient	to be in labour
parturition	childbirth
primiparous	bearing a child for the first time
puerperal	accompanying or ensuing upon childbirth
puerperium	immediate postpartum period

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CHAPTER I

INTRODUCTION AND PURPOSE OF THE STUDY

Stephen Horsley (1972), writing in Modern Perspectives in Psycho-obstetrics, stated that there is an

> almost total lack of systematic attention to the psychology of normal pregnancy, and, as a corollary, the relative absence of comprehensive teamwork which will be seen to be essential for the management of the stresses of normal pregnancy and for the prevention of mothering breakdown ... pregnancy research is still fragmentary and sometimes misdirected in its failure to correlate obstetric, psychological and social factors. (p. 292)

He maintained that standard obstetric textbooks pay little attention to the psychological needs of the average woman, and that standard textbooks of psychiatry contribute nothing to the very real problem of the psychological management of normal expectant parents.

A systematic search of the more recent medical, nursing and psychological literature for empirical studies into pregnancy and childbirth corroborates the validity of Horsley's statement, and demonstrates the lack of empirical data and theoretical propositions which would guide those doing research in this area.

There have been three main areas of enquiry which are concerned almost exclusively with the study of abnormal conditions of pregnancy.

The most concentrated area has been to determine whether there is a relation between emotional, attitudinal or psychological factors during the course of pregnancy and obstetric outcome. The second area was concerned with puerperal disorders, such as postpartum depression or post-partum psychoses. The third area involved the efficacy of education for childbirth both in terms of the reduction of stress and in preparation for natural childbirth.

One area that has received little empirical attention is that of the hospital and the type of delivery — whether vaginal or caesarian section — and their effects upon the mother and newborn infant. It was in this context that this study was undertaken.

The present study arose from two interests. First, the need for an evaluation of the effects of a "family centred" maternity programme, initiated in a Vancouver hospital in November 1971. Second, the writer's interest in the psychological aspects of pregnancy, childbirth and early parent/infant relationships.

Initial problems which reflected the difficulty in conducting applied research in the community, included a lack of funding and a lack of interdisciplinary involvement. Both of these factors placed constraints on the type of data collected and on the opportunity for long-term follow-up. Typical of applied research was the inability to assign the participants randomly to the two hospital programmes studied.

The purpose of this investigation was twofold. First, to investigate the attitudes and affect of a group of normal women expecting their first baby toward their experience of pregnancy and childbirth and toward the experiences encountered in the hospital and the early postpartum period. Second, to evaluate the effectiveness of a family centred maternity programme in promoting a positive feeling toward the infant and in terms of preparing its participants for their new role. A review of the literature was undertaken to ascertain both the present state of knowledge regarding the psychological aspects of pregnancy and childbirth and to obtain information concerning possible measures for the present study.

The rationale for such a study is based upon two factors. One is the convergence of literature involving developmental and cognitive psychology, nutrition and mental health (Murphy and Chandler, 1972; Stouvel (Note 1); Bronfenbrenner, 1975; National Association for Mental Health, 1973) indicating that pregnancy, childbirth and subsequent motherhood should be the focus of sustained interdisciplinary research and intervention action. The second is a personal belief in, and commitment to, the importance of this period from the viewpoint of prevention and promotion of psychological health and wellbeing of the family as a whole.

Review of Literature

The Role of Emotional and Attitudinal Factors in Obstetric Outcome

Tanzer (1967) stated that most of the empirical work concerning the interrelations between reproductive and psychological functions appeared in the obstetrical and gynecological literature rather than in the psychological literature, and was concerned with pathological clinical conditions. She stated that the more systematic, theoretical and comprehensive approaches to the relationship of psychological and reproductive functions have been written from a Freudian or psychoanalytic point of view. The reader is referred to the writings of Deutsch (1944/5), Benedek (1952), Bibring (1959/1961), Wengraf (1953), and Shereshefsky & Yarrow (1973). These works are vulnerable to such criticisms as unproven theoretical assumptions, lack of sound methodology, lack of empirical data and use of clinical case histories alone.

Grimm (1967) wrote one of the first comprehensive and critical reviews of the role of cultural, social and psychological factors in pregnancy and obstetric outcome. She stated that a review of this literature revealed more articles which described general clinical impressions or case histories rather than empirical research. Grimm emphasized the great need for rigour in research design and methodology; the need to make the statement of assumptions more explicit;

the need to define the criteria used; the need to demonstrate the reliability and validity of measures used.

McDonald (1968) reviewed the literature published over a period of twenty years concerned with the role of emotional factors on obstetric outcome. He listed the variables that have been studied, although not systematically. These include age, intelligence, marital status, number of pregnancies, social class and race. He also pointed out that most of the studies he reviewed were confined to indigent white patients and that the role of social class and race in the development of psychogenic obstetric complications has yet to be determined. McDonald stated that preliminary reports suggested that a part is played by emotional factors as a determinant of obstetric outcome; but, due to numerous complications, the diverse populations studied and the heterogenous methodology involved it is difficult to make definitive statements regarding such a relationship.

McDonald discussed three main methodological approaches reflected in the literature. The first involved a comparison of personality characteristics of women experiencing a single complication with those of normal pregnancies. The second involved comparison of several complications to determine possible personality characteristics specific to a clinical entity. The third approach was derived from conceiving all complications as derivatives of a single common process. According

to McDonald, it is this latter methodological approach that has generally produced the best studies. He stated that the better controlled studies indicate that "psychological differences were consistently found between complication samples and normal samples ... the common denominator differentiating the groups being an increase in anxiety levels, regardless of the test instrument used". McDonald criticized the literature he reviewed for its numerous methodological shortcomings and said that such "limitations invalidate or at least seriously weaken the conclusions derived from these studies, and stress the need for well-designed experiments, rigourous application of statistical techniques, and a systematic exploration of the psychological, physiological, sociological and epidemiological variables." A review of the literature subsequent to 1968 reveals that his criticisms and suggestions of the need for well designed studies are still valid.

The studies involving anxiety and obstetric outcome will be discussed to illustrate the type of research carried out in this area.

One of the earliest systematic studies of anxiety in pregnancy and childbirth was carried out by Klein, Potter and Dyk (1950), who attempted to predict psychological and physiological distress from two measures assigned to the women participating in their study. Klein and colleagues interviewed 27 primiparous women at each clinic visit and divided them into two groups. The first group experienced an easy pregnancy and the second group a difficult pregnancy. Two general

measures were used based on (a) favourableness of attitudes towards conception and pregnancy and (b) general stability in terms of neurotic symptoms, coping mechanisms and capacity for adapting. No differences were found in these measures between the two groups of women.

In 1956, Scott and Thomson attempted to establish whether maternal psychological characteristics investigated during the sixth month of pregnancy are related to the clinical nature of labour. They studied 278 primiparous married women. Various measures were used including a personal history, intelligence tests, the Maudsley Medical Questionnaire and interviews. No overall relationship was found between psychological measures of adjustment and total length of labour, clinical course of labour, obstetric complications or self control during labour. However, it was found that those women judged to be emotionally well-adjusted (rated by the psychologist on a three point scale) and who obtained low scores on the Maudsley Medical Questionnaire had a relatively low incidence of difficult labour, while those women who were judged unstable and poorly adjusted had a more difficult labour.

Davids, de Vault and Talmadge, (1961a; 1961b) studied the psychological adjustment of 48 pregnant women (mean age 25 years) during pregnancy and after delivery. A battery of psychological tests, including projective techniques and objective tests, was administered during pregnancy (in the third trimester) and again after the women had

delivered their babies. On the basis of medical observation and recording in the delivery room, the mothers were classified according to the degree of physical difficulty involved in labour and delivery and whether the child had any physical abnormality. It was found that the women in the abnormal group scored significantly higher on the Taylor Manifest Anxiety Scale (Taylor, 1953) during pregnancy than did women who later had normal deliveries. It was noted that after childbirth the differences in the anxiety scores between the normal and abnormal group were no longer significant. It should be pointed out that not all of the 48 women were tested both before and after delivery — only 13 in the normal group and only seven in the abnormal group. In addition, no attempt was made to control for the parity of the women.

To examine the relationship between maternal anxiety during pregnancy and childbirth abnormality, Davids and de Vault (1962) studied 50 clinic patients in the third trimester with a battery of tests similar to that used in their 1961 study. After delivery the patients were classified into normal and abnormal groups based on medical records. The complications and abnormalities reported varied from congenital conditions to prematurity and still-birth. The psychological data were then examined to see if the two groups differed on measures of anxiety derived from direct and indirect measures and projective

techniques. The results showed that with the exception of the self-rating scale all anxiety ratings were found to be significantly higher for the abnormal group. The authors pointed out that they have no information regarding the causes or underlying reasons for the high anxiety scores in the abnormal group and suggested that examination of sociological, medical and historical data may be pertinent.

Grimm (1961) carried out an investigation to determine (a) whether there are differences in degree of psychological tension over the 40 weeks of pregnancy, and (b) whether the degree of tension is related to aspects of the course of pregnancy, i.e. weight gain, length of labour, complications during labour and delivery and physical status of the child. Using a short battery of projective tests, Grimm evaluated 200 women, 40 at each of five different stages of pregnancy. Each group was equated for parity, previous obstetric complications, race, cultural background, marital status, religion, age and education. An index of tension was computed from the projective techniques used (the term tension was used "until more information can be gathered as to specifically what the index measures — whether it be anxiety, pent-up hostility, depressive feelings, etc."). It was found that those in the last half of the last trimester had significantly higher index of tension than did the other groups.

One of the first predictive studies was carried out by Zemlick and

Watson (1953). They studied 15 women (of mixed socioeconomic status and varied ethnic origin) throughout pregnancy to ascertain whether acceptance-rejection of pregnancy and motherhood, degree of anxiety and tendency to somaticize were predictive of the mother's adjustment during pregnancy and delivery and her relationship with the newborn. As predictive measures they used selected Thematic Apperception Test cards (TAT) (Murray, 1943), a locally devised pregnancy attitude scale and a psychosomatic symptom inventory. Criteria for adjustment during pregnancy were based on two measures; first, the obstetrician's rating of emotional symptoms and adjustment and second, the frequency, duration and intensity of psychosomatic symptoms. Adjustment at parturition was measured by the length of time in labour and adjustment during labour and delivery as rated by the obstetrician, and the postpartum adjustment of mother and child. Zemlick and Watson found that anxiety, psychological and somatic symptoms, and attitudes of rejection of pregnancy and motherhood were seen to be positively related to independent clinical criteria of prenatal and parturient adjustment. Anxiety as measured by the TAT was found to be related to adjustment during pregnancy and delivery but not to later symptoms.

Zuckerman, Nurnberger, Gardiner, Vandiveer, Barrett, den Breeijen (1963) tested the hypothesis that somatic complaints during

pregnancy and difficulties in childbirth are related to anxiety and conflicts involving attitudes and feelings towards other people. A series of tests and structured interviews were given to 52 primiparous women, who were predominantly black, of low or lower/middle class background, and of varying marital status. Delivery room records were rated by a senior obstetrician for duration of labour and the amount of analgesic required. Only one significant relationship was found — anxiety during pregnancy, as measured by the Affect Adjective Check List (Zuckerman, 1960), was directly related to the amount of analgesic required by the patient during the labour.

McDonald, Gunther and Christokos (1963) studied 86 white married patients from a very low socioeconomic class in an attempt to determine whether obstetrical factors such as complications and length of labour are related to maternal anxiety. The IPAT Anxiety Scale (Cattell, 1957) and the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1951) scored for the repression/sensitization scale were administered at the beginning of the third trimester. Pregnancy, delivery room and postpartum records were used for classifying patients into either the normal or subnormal groups. The list of possible abnormalities was obtained from two well known obstetric textbooks, and varied widely (e.g., subnormal apgar rating, postpartum psychosis, puerperal sepsis). According to the

authors, the two groups were comparable for age, intelligence, parity and total number of pregnancies. A significant difference between the normal and abnormal group was found on the anxiety score of the IPAT. The abnormal group also scored significantly higher on the Repression-Sensitization Scale indicating that they responded to threatening situations using intellectual and obsessional defenses while denial and repression was used by the normal group. The authors stated that their data suggest that "anxiety may be physiologically manifested in a wide variety of abnormal obstetric conditions".

A similar study by Edwards and his associate (Edwards, 1970; Edwards and Jones, 1970) resulted in contrary findings. Using an extensive test battery including self-report measures, projective techniques and ratings by observers Edward and Jones investigated personality changes associated with pregnancies and various pathological obstetric conditions. They hypothesised that those women who have obstetric complications would show more emotional disturbance as reflected by higher levels of anxiety during pregnancy. The subjects in their study were 53 unmarried pregnant women, most of whom were tested near or at the beginning of the third trimester of pregnancy. Following the initial administration of the test battery, all the women completed the State Anxiety Inventory on a weekly basis, until they entered the hospital for delivery of their baby. Weekly ratings of

each woman were made by a nurse, social worker and housemother. After delivery a pediatrician placed women in either the normal or abnormal group based on their pregnancy, delivery and postpartum records. Four to ten days after delivery, the test battery was readministered. According to Edwards and Jones the results failed to confirm their hypothesis. There were no differences between the normal and abnormal groups on four out of the five measures related to attitudes towards the pregnancy. There were no differences between the normal and abnormal group on the prenatal measures indicative of anxiety or repressiveness (as measured by the Repression/Sensitization scale of the MMPI).

A more recent study involving the relationship of anxiety to obstetric outcome was conducted by Gorsuch and Key (1974). These authors state that most studies measured anxiety either directly or indirectly at one or two points in time, during pregnancy, or at best, at two points in time, and usually late in the pregnancy, or even post-delivery. It is possible, therefore, that the reports of anxiety, often obtained retrospectively, are influenced by the mothers' knowledge of her condition.

The authors also noted that previous studies measured trait-type anxiety which, because of its global nature, does not discriminate the exact levels of felt anxiety over short time periods.

The purpose of Gorsuch and Key's study was to investigate prospectively the relationship of anxiety and life stress to abnormalities of pregnancy, parturition and the postnatal period. They examined the relationship of time-specific anxiety to the development of obstetric abnormalities and the relationship of the amount of life changes to the same type of abnormalities. The subjects were 118 women attending an obstetric clinic that served low income patients. They were of mixed marital status, gravidity and race, and ranged in age between 17 and 41. The authors pointed out that these women are in a "high risk" category as factors such as youth, gravidity, race, single status tend to be associated with a "higher incidence of medical problems in pregnancy". At the first clinic visit (which varied from the second to eighth month of pregnancy) the women completed the State/Trait Anxiety Inventory (Spielberger, Gorsuch and Lushene, 1970) for both state and trait anxiety. After inspection of the medical reports of the mother and infant the subjects were divided into problem free pregnancy and delivery and those whose pregnancy and delivery had one or more abnormalities within the first twelve hours. State anxiety measures were collated on the basis of lunar month of pregnancy and correlations were run between measures of trait anxiety before pregnancy (assessed retrospectively at the first clinic visit) and the criteria of abnormality. It was found that trait anxiety levels before pregnancy

did not differ significantly for the two groups of women. However, those women in the abnormal group had significantly higher states of anxiety during the third and fourth lunar months of pregnancy than did those women in the normal groups. The authors also reported a significant correlation between anxiety and the number of abnormalities. The two groups did not differ throughout the rest of their pregnancy. Gorsuch and Key stated that it appears that higher states of anxiety early in pregnancy are predictors of abnormalities during the pregnancy. The authors pointed out that their findings are consistent with Edwards (1970) who found no relationship between states of anxiety in the last seven weeks of pregnancy and subsequent complications. They suggested that future research involving such a relationship be centred on the states of anxiety during the first trimester of pregnancy.

Lubin, Gardener, Roth (1975), who used a predominantly white middle class sample of women, reported that state anxiety as measured by the Affect Adjective Checklist (AACL) (Zuckerman and Lubin, 1965) varied significantly as a function of trimester. Their sample consisted of 88 white women and four negro women, whose mean age was 27 years and mean level of education 14.19 years. For all subjects the mean anxiety scores of the AACL taken at the second trimester were significantly lower than the scores obtained in the first and third trimester. In all subjects anxiety decreased in the second trimester and reverted

back to its initial level in the third trimester.

From this brief selected review of the studies involving anxiety and obstetric outcome, it is apparent that McDonald's criticisms are well founded. There was seldom control for parity or socioeconomic status. Small samples of women were used who were often assigned to normal or abnormal groups with no clear-cut criteria of abnormality. In addition a wide variety of abnormal conditions were used ranging from congenital conditions to prematurity and stillbirth. Reliance was often placed on projective measures; there was often a lack of information regarding the reliability of measuring instruments used, and a lack of operational definitions regarding terms used; e.g., easy and difficult pregnancies, abnormal deliveries, normal and abnormal groups.

One of the more serious problems with these studies that has received little comment in the literature is the socioeconomic status of the population of women studied. The relationship of anxiety to obstetric outcome is confounded by the socioeconomic status of the women. The majority of studies used women from low socioeconomic class, and according to Stovel (note 1) who reviewed the literature of nutrition in pregnancy, low socioeconomic class has been related to a poor outcome in pregnancy and particularly to low birth weight infants.

Higgins (1975) stated that the relationship between maternal factors and infant mortality and morbidity has received extensive study and it has been found that "...infants born in poverty have higher mortality rates because of the low birth weight and that age, race, and socioeconomic status, were important only insofar as they were related to birth weight". Singer, Westphal, Niswander (1968), found that low birth weight is related to increased incidence of stillbirth, neonatal death, poor infant development, cerebral palsy, mental retardation and lowered intelligence.

Another important factor that has been overlooked in the studies reviewed is the obstetric history of the women. According to Stovel, many authors have indicated that subsequent pregnancies tend to repeat themselves in terms of outcome, e.g., prematurity, disability, fetal loss and so on.

A further factor not taken into account was the pregravid weight of the mother and the amount of weight gain during pregnancy. Higgins stated that there have been numerous studies which showed a high positive relationship between birth weight and maternal pregravid weight and weight gain during pregnancy. Singer and associates in the collaborative study found a significant reduction in morbidity and an improvement in growth and development in infants from mothers with above average weight gain during pregnancy.

The conclusions to be drawn from the foregoing review are that no

relationship has been established between anxiety and obstetric outcome. While this question needs to be investigated further it requires an inter-disciplinary approach and is thus beyond the scope of the present study.

Several researchers have investigated the attitude of women toward their pregnancy experience. In one of the earliest investigations into attitudes toward pregnancy, Hall and Mohr (1933) stated that their casual enquiry into the attitudes of women expecting their first baby revealed mental hygiene problems inimical to the prospect of successful childbearing. They suggested that "...the rational approach of the expectant mother should include a mental hygiene approach". Similarly, Thompson (1942) discussed the case histories of women interviewed at prenatal clinics regarding their attitudes toward pregnancy. He pointed out the necessity of paying "attention to the adjustment of the total individual and not focusing all the attention on the lower half of the torso". — an attitude which prevails over 30 years later.

Grimm (1967) cited the development of the Pregnancy Research Questionnaire by Schaefer and Manheimer (1960) which attempted to evaluate the emotional status of pregnant women as it related to the course of pregnancy. The authors of this questionnaire collected data from only 37

women and their one significant finding was that women who were fearful about the baby or themselves while pregnant tended to be "...fearful, self-blaming and insecure in the care of their infants, and to need much reassurance."

Clifford (1962) used the Pregnancy Research Questionnaire to investigate the attitude of pregnant women as a function of their marital status and parity. The three groups of 50 women who were given the questionnaire were 1. unwed mothers; 2. women expecting their first baby and 3. women who were expecting their second or subsequent baby. Five of the seven subscales dealing with attitudes toward pregnancy revealed significant differences among the means obtained by these three groups. Unwed women expressed less desire for pregnancy and less maternal feeling than either of the two other groups; unwed women expressed more depression and withdrawal and perceived the maternal role as being 'less ascendant' than did women expecting their first baby. The women who were expecting their first baby expressed greater fears for the baby, less irritability and a greater degree of marital happiness than women who had more than one child.

Grimm and Venet (1966) studied the relationship of emotional adjustment and attitudes as measured early in pregnancy to adjustment

in later pregnancy and the puerperium as well as to the mothers' physical condition. While a degree of relationship was found between early emotional and attitudinal characteristics and emotional adjustment later in the maternity cycle, none was seen between these attitudes and the physical condition of either mother and child. According to the authors, the sample of women appeared to be typical of the total obstetric population and included white and negro, mixed parity, religion, socio-economic status and education, and a wide variety of cultural backgrounds. Grimm and Venet felt that there may be a confounding of the effect of parity and age of mother which indicated the need for study of primiparae within a narrow age range. They also suggested that since there were no grossly pathological conditions in the sample, emotional factors within the "normal" range may be too minor to exert an influence in the development of pathology.

Doty (1967) investigated the effects of social class and parity in her attempt to relate expressed attitudes in pregnancy to a variety of maternal characteristics. She developed a pregnancy attitude scale and a maternal checklist of infant problems concerned with general health, feeding behaviour, sleeping patterns and amount of crying. Her sample of 200 women were assigned to middle and lower class on the basis of the Hollingshead Index of Social Position. The subjects completed the attitude scale and the MMPI during the third trimester of

pregnancy. When the infant was six months old the mother completed the maternal checklist of problems devised by Doty, and the Parental Attitude Research Instrument (Schaefer and Bell, 1958). Doty's results indicated that social class significantly affected the attitudes reflecting emotional disturbance, physical symptoms and rejection of pregnancy. The middle class group endorsed significantly fewer items indicating emotional disturbance and expressed significantly less rejection of pregnancy than the lower class group. Middle class women had significantly more physical symptoms of pregnancy than did the lower class group. Both middle and lower class multiparae expressed significantly greater rejection of pregnancy and significantly less fear of pregnancy and childbirth than did primiparae. Lower class multiparae expressed significantly greater rejection of pregnancy and maternal role than did the other groups. Doty concluded that attitudes towards pregnancy vary as a function of social class membership and previous pregnancies.

Heinstein (1967) hypothesized that the more negative the attitudes towards pregnancy the more severe the physical complications surrounding pregnancy. A variant of the Pregnancy Research Questionnaire was administered to 156 pregnant women, one third of whom were black. The subjects were clinic patients from low income families with a median age between 24 and 25. One third of the group had college education. One third of the women were seen in their first four months

of pregnancy; one third in their fifth to sixth month and one third in the last three months of pregnancy. The questionnaire was given during the first contact with the clinic. The total medical data (involving pregnancy, labour and delivery, pediatric and neurological examination of the infant) were grouped into three categories by the obstetrician and senior obstetric nurse, depending on the type of complication. Only sixteen of the 272 items of the questionnaire were significantly related to the degree of physical complications, thus their hypothesis was not confirmed.

While the overall results are equivocal regarding the effects of maternal prenatal attitude to obstetric outcome, there is evidence that attitudes do vary according to parity and social class. It would seem reasonable therefore to control for such variables in further research.

Postpartum Disorders

A major line of enquiry has concerned itself with puerperal disorders such as postpartum psychoses or postpartum depression. The focus of these investigations has been the psychopathological condition of women resulting from the experience of pregnancy and childbirth.

Postpartum psychosis was generally defined as psychosis with onset within six months after delivery, according to Kaij and Nilsson (1972), who stated that psychotic complications in pregnancy occur in

one or two cases per 1,000 deliveries and who cited studies indicating that 4-5% of all admissions of females to mental hospitals are due to such illnesses.

Baker, Dorzab, Winokur, Cadoret, (1971) defined a postpartum depressive episode "as a persistent depressive syndrome lasting a minimum of six weeks, whose onset was within six months of the time of giving birth". While there is some conflict in the literature, the consensus appears to be that disorders occurring in association with childbearing are indistinguishable from those occurring at other times in terms of symptomatogy and prognosis (Ryle, 1961; Cruikshank, 1940; Seagar, 1960; Bratfos and Haug, 1966; Baker, Dorzab, Winokur, Cadoret, 1971; Brown and Shereshefsky, 1972; Wilston, 1972).

After reviewing many early studies Seager (1960) concluded that there was no evidence for specific puerperal mental disorders, but that the puerperium acted as a stress, precipitating breakdown in predisposed women. Todd (1964) carried out one of the first prospective epidemiological studies and stated that his figures suggested that puerperal depression is the end result of a long established maladjustment, not a specific disorder — and that the pregnancy, confinement and puerperium are the stress leading to the breakdown. A leading article in the British Medical Journal (1966) stated that there is no good evidence for regarding puerperal psychosis as distinct from

psychosis outside the puerperium. In a similar vein, Silverman (1968) stated that the view seems uncontested clinically that mental illness associated with childbearing is no different from mental illness unrelated to childbirth. However, for the pregnancy phase, "There is a general air of dissatisfaction regarding mental disturbances which occur after delivery".

Kaij and Nilsson pointed out that, although interesting, the psychoses must be regarded as a small group of diseases from a socio-medical point of view and of substantially less significance than the minor psychiatric illness following pregnancy. They noted that investigations have indicated that neuroses, non-psychotic depressions, asthenic reactions,etc., are extremely common during the postpartum year. The work of Nilsson (1970) and Jacobson, Kaij and Nilsson (1965) indicated that as many as one woman in four experiences more or less incapacitating neurotic and/or depressive symptoms during this period. These authors felt that this implied that the wellbeing of the woman is disturbed and her normal way of functioning is restricted. According to Kaij and Nilsson "Systematic investigations on incidence, etiology, prognosis and symptoms of neurotic reactions in pregnancy and puerperium are virtually nonexistent". Yalom, Lunde, Moos, Hamburg (1968) stated that the occurrence of postpartum blues is "...so ubiquitous and ostensibly benign that it has not often been

deemed worthy of serious study... except for a series of uncontrolled retrospective questionnaire studies... the relationship between this syndrome and personality traits, previous mental health, attitudes towards pregnancy, complications of pregnancy, menstrual or other endocrine disturbances, previous postpartum depression, severity of labour have not been previously studied". A review of the more recent literature involving postpartum depression and "blues" supports the validity of the above statement.

Yalom and associates stated that because of the lack of consensual definition or objective studies of this syndrome, the incidence rates reported vary greatly with estimates ranging from 5% to 80%. The postulated reasons for the postpartum "blues" have been variously attributed to hormonal changes, psychological difficulties, physical discomfort, and the onset of lactation (Pitt 1968). The symptoms that occur in the postpartum "blues" involve crying, (the most characteristic sign), vulnerability to minor rebuffs, tension, anxiety, irritability and fatigue (Hamilton, 1962; Yalom, Lunde, Moos, Hamburg, 1968; Pitt, 1968).

Yalom and associates studied the degree of depression before delivery and for ten days postpartum in a group of 39 women, whose average age was 23 years. All but two women were married and came from a wide variety of socioeconomic backgrounds. Of the total group,

37 were white, two negro; nine of the women were expecting their first baby. Depression was measured by interviews, behavioral observations and psychological tests. The findings from these measures were correlated with data gathered from the personal history and hospital records concerning labour and delivery for each subject. Clinical data obtained from daily interviews indicated that crying was not synonymous with a feeling of depression. Some of the stated reasons for crying were as follows: — increased vulnerability or hypersensitivity to possible rejection; poorly tolerated loneliness in hospital; anger directed at husbands for lack of consideration or unwillingness to help. A multiple correlation of .76 was obtained between an average daily depression score and seven variables of which the main contributions were made by lower parity, increased length of time from last pregnancy, previous postpartum depression and younger age at menarche. Yalom and associates pointed out that it has been demonstrated that the more severe postpartum emotional disturbance is correlated with low parity, and this suggests that the first pregnancy represents a unique stress, that "...primiparae, unlike the multiparae, cannot prepare themselves for the physical sensations of pregnancy, for the personal sensation of creation, for the delivery process, for the major physical and emotional changes necessitated by the assumption of motherhood". There is, however, conflicting evidence

regarding the association of low parity with depression. For example, Todd (1964) conducted a prospective epidemiological study of puerperal depression. An evaluation of parity revealed a preponderance of third pregnancies within the depressed groups. According to Todd primiparous women "seem relatively immune from psychological disturbances in the puerperium". Davidson (1972) used a sample of negro women and found that postpartum blues were significantly associated with a greater incidence of multiparity.

Concurring with Yalom and associates, Pitt (1968) stated that although it is common knowledge that women often become depressed after childbirth, there has been little evaluation of what this depression amounts to. According to Pitt, transitory tearfulness in the early puerperium is common and is generally regarded as a normal phenomenon. He queries what lies between the extremes of severe puerperal depression occurring in no more than one in 500 births and the "trivial weepiness of the blues". He suggests the concept of "atypical depression". Pitt surveyed 305 maternity patients who were given a questionnaire designed to measure anxiety and depression around the 28th week of pregnancy and again six to eight weeks after delivery. Ten per cent of the women developed puerperal depression, and of these only one of the women had a classical depression, while the pattern of symptoms for the rest of the group was that of "atypical" depression — " a

milder variant of physiological depression most often seen in younger women or immature personalities". It is called atypical depression because of the prominence of neurotic symptoms, i.e., anxiety, irritability and phobias, or because some features do not coincide with classical cases of depression. Pitt stated that it was after "the return home that depression was always most evident, chiefly as tearfulness, despondence, feelings of inadequacy and inability to cope — particularly with the baby". The depression was nearly always accompanied by anxiety over the baby, anxiety which was not justified by its health.

In 1973 Pitt decided to examine the incidence, phenomenology and associated features of the "blues". He interviewed 100 women between the seventh and tenth day postpartum and found that half of these women could be diagnosed as having the "blues". Of these 35% occurred within four days of parturition, 26% on the third day. Those women suffering the "blues" differed from the rest of the women only in that they experienced more difficulty in breast-feeding. No significant differences in attitudes towards pregnancy, experience of labour, baby's health or social stress were apparent. Six of the women who had the "blues" developed puerperal depression, a state of despondency lasting a month or more. Pitt stated that the "blues" is "a trivial, fleeting phenomenon"and should not be confused with the 'atypical' or neurotic form of puerperal depression.

Postpartum Adjustment

The Gordons (Gordon and Gordon,1959; Gordon and Gordon,1960; Gordon, Kapostinus, Gordon,1965) have shown that personal and social stress items significantly discriminate between normal married mothers and those who have postpartum emotional upset. The authors gave a social history questionnaire to 98 normal women who had just delivered their babies. Four months after delivery the physician of each woman completed a rating scale as to the degree of emotional disturbance experienced by these women subsequent to delivery. The 98 women were compared with maternity patients who had sought psychiatric help. The following items significantly differentiated the two groups: emotional problems in the woman's background; physical complications of pregnancy; age of wife; religious intermarriage; no help available after the birth.

Nilsson and his associates (Nilsson, 1970; Nilsson and Almgren, 1970) have conducted a series of prospective studies involving the postnatal adjustment of Swedish women. The aim of these studies was threefold: First, to study the occurrence, nature and prognosis of parapartum emotional illness using a prospective method; second, to investigate which aetiological factors influence such illness; and third, to establish characteristic patterns of adaptation in relation to the stress situation which birth entails.

Their study involved the investigation of 165 unselected women

attending prenatal clinics for the first time during the current pregnancy. The women were interviewed on three occasions; after their first visit to the clinic, two to three days postpartum and six months postpartum. The content of such interviews included psychiatric history, general social and environmental questions and attitudes towards their current pregnancy. A clinical evaluation was carried out and the psychiatric status of the women was noted. At the first and third interview, the women were given psychological tests including an assessment of intellectual and cognitive functioning and a personality assessment. Four questionnaires were designed to measure neuroticism, prenatal identification and degree of identification with stereotyped feminine and masculine characters. Measures used by the authors as criteria of the women's adjustment to childbirth included the occurrence of psychiatric symptoms (before, during and after pregnancy); clinical signs of illness; deviations in tests, attitudes and sexual adjustment.

In Part One of their study they surveyed psychiatric morbidity. On the basis of reported symptoms, the extent of adaptional difficulties during pregnancy and postpartum was calculated. The principal measure in this survey was the author's estimation of the degree of disturbance based upon the seriousness and number of individual psychiatric symptoms reported in each period. They found that the signs of mental disturbance were of the same magnitude during pregnancy

as during the postpartum period and the occurrence of such signs, e.g., lowered mood, affective lability, psychomotor retardation, was high in both periods. Nilsson and associates stated that the high occurrence of mental symptoms and disturbances during the pregnancy period was remarkable in view of the general belief that psychiatric symptoms occur infrequently during this period and since several authors maintained that mental illness is more common after delivery.

In Part Two of their study Nilsson and associates compared the frequencies of subjective psychiatric symptoms before, during and after pregnancy with various background factors, tests and clinical observations. Relationships were found between symptoms occurring during pregnancy and the postpartum period and such factors as the women's attitude towards pregnancy, relationship with the child's father and environmental conditions at the time of pregnancy. According to the authors the high frequency of symptoms during pregnancy often seemed related to unfavourable environmental circumstances, while postpartum symptoms, to a great extent, indicated the existence of "more deeply seated conflicts" connected with reproductive functioning. These conclusions were based on the association which was found between postpartum mental symptoms and such factors as unsatisfactory early relations with the parents, a moralizing attitude towards sex at the parental home, a negative attitude towards motherhood.

There is little empirical research into the psychological aspects of postpartum adjustment. It is difficult therefore to draw any conclusions about a possible relationship between postpartum adjustment and attitude toward the infant.

Hospital Environment

Another area of research that has received little attention to date and that may influence the postpartum maternal behaviour of women and their early relationship with their infantsis the study of the hospital experience and its effects, if any, upon the mother and her infant. A review of the literature showed only a few objective studies concerned primarily with the hospital experience of the mother, although there are many articles describing the instigation, philosophy and advantages of rooming-in and family centred maternity care (Engela,1963; Faletta, 1963; Wooden, 1962a, 1962b; Jackson, 1946; Engelb,1963; Timberlake, 1975; Thoms, 1962; Ratsoy, 1974; Haire and Haire, 1968; Cox, 1974).

Shea, Klatskin, & Jackson (1952) compared the home adjustment over a period of one month post hospital discharge of mothers who experienced rooming-in with those women who participated in the typical maternity ward. Although rooming-in was not defined in the study, typically it involves the situation where the newborn infant is placed in a bassinet in the mother's room, usually during the day. At night the infant is returned to the central nursery. The study involved eleven matched pairs of primiparae, equated as closely as possible for age, education

and socio economic class. Follow-up visits were made on the mothers' first day home from the hospital and then arranged according to the mother's need. These home visits were made by a member of the research staff of the rooming-in project. A general outline covering certain topics was used for each visit, and the visiting researcher wrote down her observations afterwards. To make these observations more objective, a rating scale was devised to code the data. Shea and associates stated that because of the small number of subjects involved, no statistical analysis was done, (nor were the data presented in such a way as to allow one to make statistical analyses). Certain trends were noted by the authors, e.g., the rooming-in mothers were rated more competent in handling their baby, they felt more self confident in understanding their baby's needs and behaviors and required fewer nursing visits. (Those in rooming-in averaged three visits; non-rooming-in, seven visits.) Shea and associates concluded that "mothers having rooming-in experience have greater facility in handling the baby and more self-confidence in understanding the baby's behaviour".

A second study comparing rooming-in with traditional maternity wards was carried out in Sweden. Greenberg, Rosenberg and Lind (1973) randomly assigned 100 primiparous women, matched for age, socio economic status and education of fathers to either a rooming-in

facility or a traditional ward. The women in the rooming-in facility fed the infants on a regular schedule. The infants were brought to the mother 12 to 16 hours after birth and remained in the bassinet in the room from 9.00 a.m. to 6.00 p.m. In the traditional ward, the mothers saw the infant for 20 minutes at each feeding. Fathers in both groups visited for one hour a day during which time the infant was not permitted in the room. The authors developed a 50 - item multiple choice questionnaire which was given to all women. The important significant findings from this study were that rooming-in mothers judged themselves more confident with the infants and in caring for the infant; could understand one or more attributes of the baby's cry; and developed maternal feelings faster than those women in the traditional maternity ward.

One significant feature of the usual family centred maternity programme not incorporated into the above studies was the participation by fathers. An early study comparing conventional maternity systems with a family centred approach was undertaken by Moyer, Collette, and Ludtke (1966). The authors stated that it was difficult to define either the conventional maternity care programme or the family centred programme in absolute terms because of the many variations to be found. The two practices can be distinguished in a general sense, however, and the authors cited five relatively distinct differences

between the two programmes as applied to the hospital in which they carried out their research. These differences are listed below:

Conventional programme

1. Father not present during delivery
2. Infant housed in central nursery
3. Scheduled feedings
4. Father present only during regular visiting hours
5. Father cannot handle the baby

Family centred programme

1. Father present during delivery
2. Infant housed with mother
3. Demand feeding
4. Father has unrestricted visiting privileges
5. Father allowed to handle the baby

In 1964, the hospital in which Moyer and associates carried out the research changed from a conventional maternity delivery system to a family centred system. The most pronounced difference between the two programmes was the added emphasis placed on close contact among the family members during the hospitalization. The basic design of the study was to make a post hoc comparison of two groups of families. In one group the mothers had been cared for under the traditional programme, while the second group consisted of those who

entered the hospital after the changeover to the family centred plan. Forty cases were selected at random from those mothers who delivered their baby prior to the changeover and 40 cases from those who delivered their baby after the changeover occurred. Questionnaires were then mailed to both groups at the appropriate time intervals after hospital discharge. The questionnaires involved indicators of posthospital adjustment and included mothers' and fathers' tension level in handling the infant; mothers' and fathers' irritability level; degree of mothers' postpartum depression; health problems of the infants which might have emotional etiology. Eighty per cent of the questionnaires were returned from each group of parents. The most significant finding was that 88% of mothers in the traditional programme reported varying levels of irritability, while only 53% of those in the family centred programme reported the same. Moyer and associates concluded by stating that their findings "...give some credence to the assumptions underlying the family centred maternity care plan. However, considerable research still needs to be done in order to ascertain the relative value of the various facets of the programme".

Moyer's study is retrospective and while the groups in each programme appear to be similar, there is no information dealing with group composition. There was a 20% dropout rate from both groups. Moyer argued that his findings give strong support to the proponents

of family centred maternity care inasmuch as the programme contributed to the emotional adjustment and stability of the family. In fact, there were no differences between the groups reported for mothers' postpartum depression as measured on a four point scale. In view of the fact that the study took place relatively soon after the instigation of the new programme there is the distinct possibility of a Hawthorne effect.

A second and more ambitious study of the differential effects of a family centred maternity care programme was carried out by Jordan between 1969 and 1971 (Jordan, 1973a, 1973b, 1973c). This study was carried out in two hospitals, one of which offered a family centred maternity programme and the other a more traditional programme. Two hundred and nine families participated in the study. One hundred and eleven families were involved with the hospital having the family centred maternity programme and 98 at the more traditionally oriented hospital. The women were divided into primiparous and multiparous groups. All the participants were seen five times by one of two project investigators as follows: during the ninth month of pregnancy, 24-48 hours after delivery of the baby; seven to ten days after discharge from the hospital and at five and eight weeks after discharge. Each time the subjects were seen an appropriate set of questionnaires were left to be completed by the husband and wife. Data were analyzed in

2 x 2 contingency tables using chi square as the test of significance. Significant findings included the following: a patient has a greater degree of trust and confidence in the nurse when a specific nurse patient assignment is made; the parents' confidence is greater and they have less fear of their inability to care for the baby when the hospital environment has offered a variety of learning opportunities in the care of the baby; the family relationship is stronger when the hospital environment permits the parents to be together during the labouring process and to handle their baby as much as they desire; areas of concern to the mother are expressed more frequently when a variety of learning opportunities are offered to the mother in the hospital; more fathers feel confident in caring for the baby, being of greater help with the baby and do not object to helping with the infant when the couple have participated in the family centred programme; mothers require less help with instruction and require less reassurance.

Jordan made the implicit assumption that "rooming-in" is family centred maternity care. It has been pointed out by Haire and Haire (1968) that "modified rooming-in" is an important part of family centred maternity care. These authors stated that rooming-in requires the mother to "categorize herself — to designate or commit herself to a type of care she often knows little about". Flexible rooming-in, on the other hand, allows the mother rather than the hospital to determine

how much time she spends with the baby.

Jordan also assumed that the groups in each hospital were comparable regarding demographic data when, in fact, significant differences existed between the two groups of primiparous women in favour of the family centred maternity hospital. It is unfortunate that the study was completed with a sample that did not meet the initial selection criteria. Fifty per cent of those in the traditional hospital did not meet the criteria of no prenatal classes, thus, confounding the results obtained regarding the efficacy of family centred care with the effects of attending prenatal classes.

Another difficulty with the study was that Jordan's method of obtaining the sample differed for the two groups. One group (the family centred maternity) was approached personally while the other group (traditional) was referred by the doctor.

According to Jordan different individuals conducted the various interviews which apparently resulted in slight differences in the manner in which the interview data were reported, and this may have contributed to distortion or bias in the results. There was no indication in Jordan's report as to whether the questionnaires were reliable in terms of either internal consistency or stability over time. Statistical analysis of the data was conducted using the chi square. This resulted in hundreds of comparisons being made which led to the very strong

possibility of many Type 1 errors occurring.

Research is presently being conducted by Klaus and Kennell and their associates which relates to the hospital environment of the maternity patient.

Klaus and Kennell (1970) maintained that behavioural studies in a large range of animal species as well as preliminary studies of human maternal behaviour suggested that what happens in the period immediately following delivery of the baby "may be critical to later maternal behaviour". Seashore, Leifer, Barnett and Leiderman (1973) agreed, citing studies of maternal behaviour in the nonhuman mammals which suggest "that restriction of interaction of the mother and baby in the early postpartum period influences subsequent maternal performance and may, in fact, produce clearly incompetent mothering." The authors pointed out that previous studies involving maternal/infant separation of the human have concentrated on the effects of long term separation on the development of the infant, paying little attention to the question of how the mother is affected by such a separation.

Klaus and Kennell cited a personal communication from Barnett, an anthropologist who searched the Human Relations File (which lists 220 cultures) for variations in human maternal behaviour following delivery of the baby. Barnett found that all societies exhibit a "regularized" way of dealing with birth. In most culturesmother and

infant are secluded together during the three to seven days after birth, until the umbilical cord heals. Apparently "routine complete separation of mother and infant in the first days after delivery exists only in the high risk and premature nurseries of the Western World". Klaus and Kennell stated that

> In this century both birth and death, the two most important events in the life of an individual, have been moved into the hospital and away from the family and centuries of traditions and cultural patterns of behaviour. Practices surrounding both events appear to have been almost wholly determined by the psychological needs, the convenience, the limited perspective, and the bias of the dominant members of the hospital culture (nurse, physician, and administrator). (p.1026)

Klaus and Kennell maintained that most normal deliveries in the United States are associated with several days of what Barnett calls "deprivation" for the mother — "Only mothers who deliver at home or room-in with their infants experience no deprivation". While this is an overstatement the point is well taken. (Rooming-in, in studies mentioned previously, seems to be on a daily basis rather than full time.) The authors pointed out that the naturalistic arrangements of rooming-in procedures may be of immense value for the mother and child.

The observations made by McBryde (1951) were used by Klaus and Kennell to support the concept that close contact between mother and infant during the initial days after delivery may well facilitate mothering

behaviour. McBryde reported that when rooming-in was made compulsory at Duke Hospital "the incidence of breast feeding rose from 35% to 58.5% while telephone calls from anxious mothers during the first weeks after discharge decreased by 90%." Klaus and Kennell believed that the mothering behaviour of each woman, "her ability to tolerate adverse stresses, and her need for special attention differ greatly and depend upon a multitude of factors". Figure 1 is a modification of the schema that they have developed illustrating the major influence of mothering behaviour and the resulting possible disturbances which arise when this behaviour is disordered. The disorders range from mild concerns to the most severe — the battered child syndrome. Klaus and Kennell suggested that the range of difficulties may be the end result of separation in the newborn period. Low birth weight and prematurity often involved a prolonged separation between mother and infant. Kennell, Trause and Klaus (1975) cited studies showing that premature infants constituted a "disproportionately high number of both battered children (23-31%) and those with the "failure to thrive" syndrome".

Helfer (1975) in his discussion of child abuse stated that "The precipitating event may be real or imagined, a birth defect, a social or economic disruption of the family, a difficult pregnancy or delivery, or early separation of mother and child." According to Helfer, abused

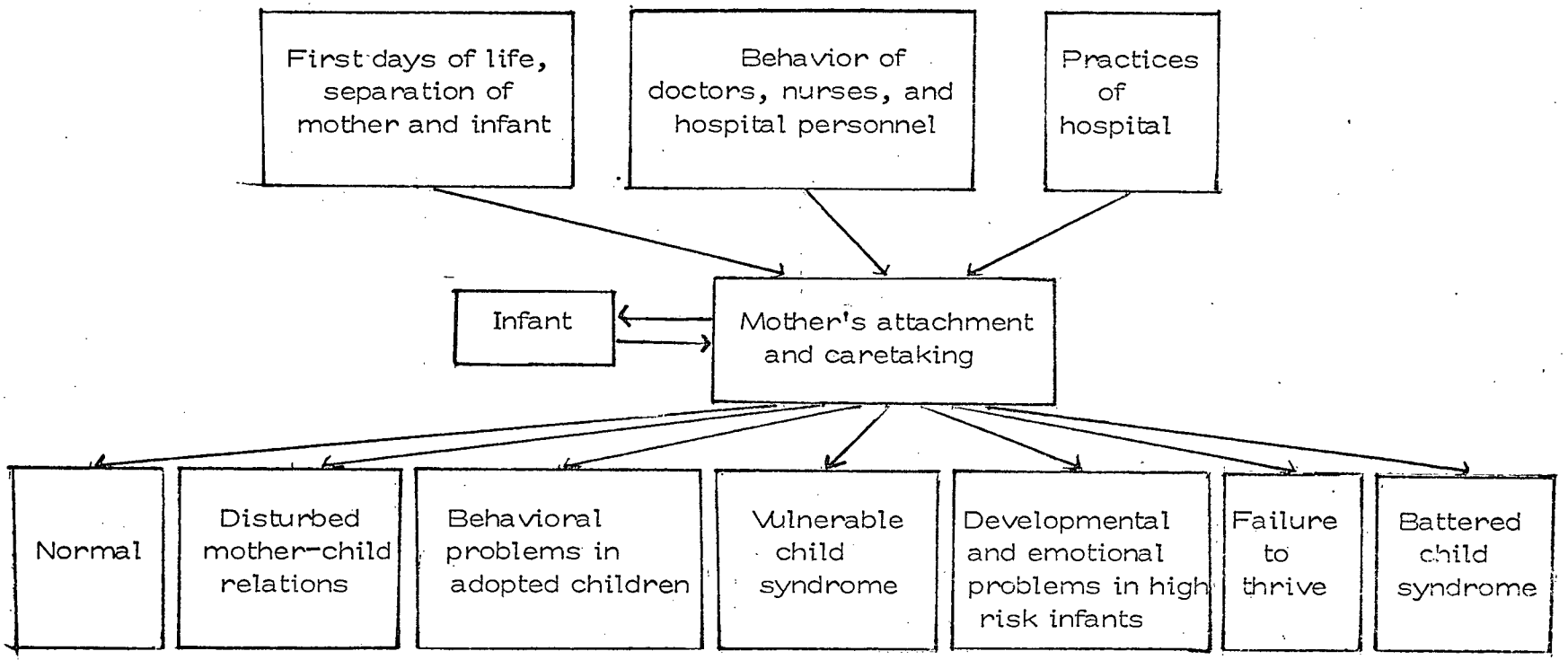


Figure 1. Disorders of mothering: adapted from Klaus M. and Kennell J: Mothers separated from their newborn infants. Pediat Clin N Amer 17:1015, 1970.

children have a prematurity rate twice that of the general population and a caesarian section rate much higher than that of the general population. (In a personal communication to Kennell, Trause, and Klaus (1975), Helfer stated that the incidence of child abuse is ten times greater with a caesarian section than with vaginal deliveries.)

Findings from the research undertaken by Klaus and his associates have demonstrated that there is indeed an influence of early separation on the subsequent relationship between mother and infant.

In an early study Kennell, Gordon, and Klaus (1970) compared the behaviour of mothers who had been separated from their premature infants for the first 21 days of life, with those mothers who had been allowed physical contact within the first five days. Using time lapse photography, observations were recorded and analyzed for the first ten minutes of the feeding immediately before discharge from the hospital. Twenty-five activities were recorded for each mother including caretaking skills and maternal affection. A significant difference in the percentage of 'en face' contact and cuddling time was seen between the early and late contact mothers. At a one month follow-up it was found that late contact mothers held their babies differently, changed position less, burped them less and were not as skillful in feeding them as those mothers who had had early contact with their premature infants. Kennell and associates (1975) discussed the follow-up of premature infants and stated that 'preliminary data on the

Stanford Binet I.Q. of the two groups of children at 42 months indicated that those in the early contact group scored significantly higher than those in the late contact group (mean I.Q. 99 vs 85). Furthermore, a significant correlation (correlation coefficient = .71) was found between the I.Q. at 42 months and the amount of time women spent looking at their babies during the filmed feeding at one month of age". (It is unclear whether this follow-up is of the children studied by Kennell, Gordon and Klaus (1970).)

In 1972 Klaus, Jerauld, Kreger, McAlpine, Steffa, and Kennell carried out a study to determine whether hospital practices in the United States affected later maternal behaviour of women who had full term as opposed to premature infants. The sample was 28 primiparous women (26 negro, 2 white) with an average age of 18 years who had reached grade 10 or 11. Of this group nine were married. Each mother was placed in one of two study groups depending on the day of delivery. According to the authors the mean age, socioeconomic class marital status, race, premedication, sex of infant and days hospitalized were "nearly identical". Fourteen mothers had the usual amount of contact with their infants, i.e.,a glimpse of the baby shortly after birth, brief contact and identification at six to 12 hours, then the usual feeding scheduled every four hours. In addition to this routine, for

the three days after delivery, the 14 mothers in the extended contact group were given their nude babies, for one hour within the first three hours after birth and for five extra hours of contact each afternoon. The mothers returned one month after delivery for three separate observations consisting of a standardized interview, an observation of maternal performance during the physical examination of the infant and a field study of the mother feeding her infant. The results indicated a significant difference in behaviour of the groups of women towards their infant, in the area of fondling and face contact. The scores obtained on interview questions and observations made during the physical examination of the infant also indicated significant differences between the groups. The extended contact mothers were more reluctant to leave their infants with someone else, showed greater soothing behaviour if the infant cried, and engaged in significantly more eye-to-eye contact with and fondling of the infant. In view of these differences in maternal behaviour at one month, Kennell, Jerauld, Wolfe, Chesler, Kreger, McAlpine, Steffa and Klaus (1974) conducted a follow-up study to see whether these differences persisted after one year. At this time the mothers were observed by investigators who were not familiar with the mothers, nor had the observers had contact with the mothers during the previous eleven months. The authors did not say whether the investigators were aware to which group the mother/infant pair belonged. The observers monitored mother/infant inter-

action through a two-way mirror in seven separate situations. Significant differences were found between the two groups in their answers to interview questions and in their behaviour during a physical examination of the infant. In the observation period during the physical examination the women in the extended contact group spent a significantly greater total time assisting the physician than did the control women. The extended contact group also spent a significantly greater time soothing in response to crying and were more likely to kiss their babies than the control group. In addition there was a significant difference on the Bayley mean developmental index between the two groups of infants — 98 for the infants of the extended contact mothers and 93 for the control group mothers. Kennell and colleagues concluded that these apparently striking findings need to be replicated in a large study but that those who care for infants and mothers should be aware of the possible long term effects of the early postpartum period.

Two years later five mothers were selected at random from each group and the linguistic behaviours of the two groups of mothers were compared while speaking to their children. It was found by Ringler, Kennell, Jarvell, Navojosky and Klaus (1975) that "the extended contact mothers used twice as many questions, more words per proposition, fewer contact words, more adjectives and fewer commands than did the

controls. The authors pointed out that this may have been due to chance selection and the study should be repeated. They made the additional point that the findings from the above research suggest "that 16 extra hours of contact in the first three days of life appear to have affected maternal behaviour for one year and possibly longer, thus offering support for the hypothesis that there is a maternal sensitive period soon after delivery."

There are several procedural difficulties with the above research that may have influenced the results. It is not possible to rule out expectancy effects on the part of the participating mothers. First, it was not known whether they were aware that they were part of a research study; second, as Klaus pointed out, the mothers may have seen handling their baby as a special privilege, leading to a subsequent change in their behaviour. It is unusual in any hospital to be supplied with a heat panel and your naked baby to fondle — a very obtrusive feature of the study. Also, as Klaus mentioned, there was the question of the time and amount of contact which was not controlled for. In addition, there was no attempt to control for the amount of stimulation per se received by the babies in the contact group — the differences obtained may have been due in some part to the effects of stimulation rather than the lack of separation.

Leifer, Leiderman, Barnett and Williams (1972) have conducted

similar research using a different population and more stringent controls. Their sample was 80% white women. The median education for the mother was completion of high school, and for the father was some college education. The median age for both parents was 25-29 and median social class was 111 as measured by the Hollingshead Index. The sample consisted of three groups of mothers; 22 separated mothers of premature babies, who had visual contact only for three to 12 weeks after birth; 22 contact mothers of premature babies who entered the intensive care nursery two to three days after the birth of the infant and handled the infants in the incubator and participated in normal care activities as far as possible; and 24 mothers of full term babies. Assignment to the separate and contact group was made on a random basis and the women were unaware of the existence of the two groups. The separated infants were given additional handling by the nurses to avoid the possibility of differences arising due to differential amounts of early stimulation rather than maternal contact. The full-term mothers were matched as far as possible for parity, social class and sex of infant to the women in the premature group. Attachment behaviours of three groups of women were compared in time-sampled observations prior to and one and four weeks after the infants' discharge from hospital. Maternal attachment behaviour was defined as "the degree to which a mother is attentive to and maintains physical contact with her infant." Major

findings from this study were that contact mothers held their infant in the ventral holding position for a significantly greater percentage of the time than did the separated mothers at the first week postdischarge period. It was also found that full term mothers smiled at their infants more often and maintained more ventral contact with them than did mothers of premature babies while in hospital, and at the one week and one month post discharge time periods.

Using a paired comparison questionnaire for the two groups in the above study, Seashore, Leifer, Barnett, and Leiderman (1973) examined the attitudes of self-confidence in caring for the infants. It was found that separation resulted in lower self-confidence for primiparous mothers but not for multiparous mothers. A comparison was made of mothers initially low in self-confidence and it was seen that those mothers in the separation group were more likely to remain low in self-confidence until the infant was discharged. By one month, however, self-confidence of the primiparae had increased to a level comparable to that of the other mothers. It was also found, that although primiparous women in the separation group felt significantly less confident than did other mothers, they were only slightly less skillful at caretaking tasks. Multiple regression analysis indicated that skill never predicted self-confidence, whereas self-confidence for instrumental tasks such as diapering, feeding and bathing the baby, just prior

to discharge did predict skill one week after discharge, thus demonstrating that a mother's degree of self-confidence does have some bearing on her skill in caring for her infant. According to the authors this suggested that modification in attitudes prior to discharge was associated with subsequent behaviour at one week post discharge and also suggested the "prepotency" of a social skill in directing or organizing one of the specific tasks". The authors felt that the immediate postpartum period may be a time when the mother is psychologically and physiologically ready to assume the mothering role. They suggested that a woman who is uncertain of her ability to fulfill this role "may need the reinforcement and learning experience" that she is denied when separated from her infant.

From the above data Leiderman, Leifer, Seashore, Barnett and Grobstein (1973) and Leiderman (1974) concluded that denial of contact between a mother and her infant will influence both maternal attitude and behaviour which is consistent with the animal literature which shows that delay in contact during the neonatal period can lead to a deterioration of maternal caretaking behaviour. They further stated that the finding that full term mothers smile more and maintain more ventral contact with their infants than do mothers of premature babies may indicate an "attenuated relationship" between mother and premature infant. This is consistent with the data indicating that premature babies are more frequently battered by their parents than are

full term babies. Leiderman and associates also stated that the major influence of separation seems to be on the maternal self-confidence, suggesting that the immediate postpartum period is a particularly sensitive one for the development of appropriate maternal behaviour.

Eleven to fifteen months after the end of the separation period, Leiderman and Seashore (1974) followed-up the mothers in the above studies. By the eleven months postdischarge period, the only maternal behaviours which were differentiated by the experimental condition of contact or separation were smiling and touching. Full term mothers smiled at their infants more than did mothers of the premature babies, and mothers in the contact group touched their babies more than did the separated group. The conclusion from this follow-up study was that circumstances other than the initial separation determined, to a large extent, the behaviour of mothers at time of follow-up. Leiderman and Seashore pointed out that this emphasized the need for "methodological clarity and the use of more sophisticated statistical techniques covering a wide range of factors" before any definitive conclusions can be drawn regarding the effect of any single experimental manipulation on later maternal behaviour. The authors maintained that the variations in mothers' behaviour can be understood more satisfactorily using a learning theory model as opposed to an ethological model. This latter

model would "describe bonding behaviour as species specific and relatively uninfluenced by either prior experience of the mother, her expectations or cultural values". They pointed out that the opportunity exists for rapid learning in the nursery during the neonatal period and suggested utilizing the nursery situation to encourage specific kinds of behaviour in parents that may enhance cognitive development of the infant on the one hand and familial relationships on the other. In addition to the immediate experiential influences in the neonatal nursery, the authors believed that influences such as social class, sex of infant, and birth order as well as parental attitudes and expectancies are among the many factors which affect the maternal/child relationship. They concluded that an enlightened view of the importance of these early interactions should lead to an attempt to enrich the "socially sterile atmosphere in today's hospitals" thus allowing the development of parent/infant relationships in the early postpartum days.

The above research involving mother/infant bonding has implications for the use of analgesic and anaesthetic during labour and whether the mother is conscious at the time of the birth of her baby. Alper, Brown, Osteimer and Scanlon (1975) stated that although many effects of maternally administered drugs on the neonate have been described "the question of their significance is basically unanswered". They stated that a comprehensive longterm study of the effect of

maternal medication on maternal/infant bonding is needed. According to Moss (1967) this relationship depends on the neonate's responsiveness to maternal "cues", it also depends on the baby's ability to trigger appropriate care-taking behaviour from its mother. As Brazelton (1970) stated,"Watching a drugged mother and a depressed infant who must make a 'go' with each other should stimulate us to re-evaluate the routine use of premedication and anaesthesia in pregnancy and delivery in the light of its effect on early mother/infant interaction".

Conclusions from Review

In light of the numerous methodological difficulties encountered it is not possible to draw many major conclusions about pregnancy, childbirth and the early postpartum period. One conclusion that may be derived, however, is that this research reflects to a great extent the two inherent methodological difficulties of doing applied research. Subjects have to be accepted as available, and usually in existing groups. Groups are preformed, and bound to their subculture and the time and place of the study. As a result, neither randomization nor generalization is possible. As Campbell and Ross (1970) point out:

> Social research frequently encounters the task of evaluating change produced in nonrandomly selected groups by events which are beyond the researcher's control. ....Because in these situations the investigator has no control over the assignment of individuals or groups to "experimental" and "control" situations, the logic of the classical experiment must be re-examined in a search for optimal interpretative procedures. (p.110)

Given the difficulty of randomization in applied research, there are inherent problems in the studies reviewed that researchers could control more successfully, namely the use of nonstandardized measures, or locally devised measuring instruments; there is a lack of operational definitions of terms used; a lack of information regarding the reliability and validity of measures used. It must be mentioned that few measures exist in the area of attitudes towards pregnancy and childbirth.

Another difficulty with the research reviewed is the frequent reliance on single measures, e.g., ratings by one individual or single questionnaire data, a score on a depression or anxiety scale. Webb, Campbell, Schwartz and Sechrest (1966) pointed out the necessity for multiple operationism and the use of combined measures that avoid the same weaknesses. Other problems include the use of non-representative samples, e.g., unwed mothers, in research involving pregnancy and childbirth and then generalizing to all women. It is felt that some of these difficulties arise because pregnancy and childbirth have been conceptualized as happening to "women" rather than black or white, rich or poor, old or young, primiparous or multiparous women. Much has been written on cross cultural differences in attitudes and approaches to delivery, and the postpartum period. It is suggested that we need to acknowledge cultural differences also and take into account ethnic origin, race, socioeconomic class and concomitants, as well as parity

and age of the women involved.

Another serious drawback reflected in the pregnancy literature is the lack of an interdisciplinary approach to research in this area. In fact, one might go so far as to say there is a lack of commitment to long term programmed research.

A final comment which is not unique but which needs reiterating is the emphasis in the literature on the "abnormal" aspects of pregnancy and childbirth. How can one make meaningful statements regarding abnormality, whether psychological or medical without regard to the normal population? As Medwar (1967) points out,"It is not informative to study variations of behaviour unless we know beforehand the norm from which the variants depart".

The present study is applied research and thus falls heir to the difficulties discussed above. The major difficulty was the inability to assign women randomly to the two major independent variables — hospital maternity programme and type of delivery. There are, however, some aspects of the present study which improve upon previous work. For example, the total group of women constitute a homogeneous sample of primiparous women. It was felt necessary to control for socioeconomic status in view of the relationship between low socioeconomic status and obstetric outcome (cf., Higgins, 1975; Singer, Westphal and Niswander, 1968). It was also felt necessary to control for parity as research indicates that primiparae and multiparae do in

fact differ in their attitudes towards pregnancy and childbirth (Erickson, 1965; Doty, 1967; Tanzer, 1967; Clifford, 1962).

All women who participated in the study attended education-for-childbirth classes. A review of the literature showed that the efficacy of childbirth classes is equivocal, but there is evidence to suggest that women who participate in preparation for childbirth differ from those who do not (Lapidus, 1968, 1969; Oliver, 1972; Hooser, 1972).

Standardized measures were used wherever possible. Where this was not possible, e.g., attitude to pregnancy, questionnaires were used that had been utilized in a study of a population of women living in a major Western Canadian city (Jordan 1973).

Postpartum adjustment was operationally defined as a composite of affect, behaviour and positive attitude towards baby (as opposed to a single measure of depression).

Evaluation Research

Because the present study is essentially evaluation research, it is appropriate to examine the fundamental differences between this type of research and experimental research.

Weiss (1972) pointed out that while evaluation applies the methods of social science, there are some features that distinguish evaluation research from other types of social research. For example, evaluation research is used for decision making, the questions considered

by an evaluator are not his/her per se, rather they arise from questions that those concerned with decision making may have and questions may arise from the programme itself. There is a judgmental quality to evaluation research that is basic to evaluation and which differentiates it from other kinds of research. Evaluation takes place in an action setting where the most important aspect is what is going on in the programme. In evaluation the research requirements often run up against established programme procedure; there are often role conflicts between service and evaluation which typically do not happen in other types of research.

According to Weiss, the purpose of evaluation research is to measure the effects of a programme against its objectives. The usual evaluation hypothesis is that the programme is accomplishing what it sets out to do. Weiss states that experimental design is the optimal research design to ascertain how well a particular programme achieves its goals. It is generally agreed that randomization provides a means for controlling for the influence of extraneous variables that cannot be controlled directly and is the soundest basis for making inferences concerning the effects of intervertion. (Sherwood, Morris, Sherwood, 1975). Sherwood and associates stated that an individual doing evaluation research is not always able to implement a random design. Social intervention does not take place in a closed laboratory within an

academic setting, where experimenters can manipulate both intervention and subjects. In the opinion of Sherwood and associates, the intake policies of agencies providing the service, government regulation,and financial, political and community pressures are likely to affect decisions concerning the sample selection. As in most applied research, evaluators often work with preformed groups such as school classrooms, hospital wards etc. The authors maintained that the only time one can ethically randomly assign is when the number of potential members for a new programme is larger than the number of openings. They stated that randomization is usually not possible if there are just enough applicants at the beginning of a programme and with previously initiated programmes with established intake policies.

If randomization is not feasible, what are the options? They could be (a) no applied or evaluation research; (b) critical use of quasi-experimental design, as suggested by Campbell and Stanley (1966); (c) a matching technique, as suggested by Sherwood and associates (1975). This third alternative will be discussed briefly as it appears to be a useful technique to use when randomization is not possible. A full description of their method appears in their article. In the context of subject differences, Sherwood and his colleagues argued that randomization may be viewed as an alternative to matching, since one of the goals of randomization is

to produce comparable or matched groups. They stated that while matching as an alternative for randomization is viewed as inferior it appears that opposition is to the particular matching procedures rather than matching per se. They argued that while the regression to the mean critique forbids the use of matching on the basis of premeasures of outcome variables it does not necessarily forbid matching on the basis of other variables.

The basic assumption underlying their multivariate matching procedure was that, to the extent it is possible to construct subgroups of individuals alike on key variables, "it is reasonable to believe that the matching of experimentals with controls within these subgroups should lead to the construction of equivalent experimental and control groups". The authors drew on the basic premises of social sciences and stated that "the assumption is that an individual, his ideas, attitudes, behaviours, etc., is in large part a product of these experiences and social expectations which impinge upon him because he occupies these socially defined 'positions'. ...Social background variables (age, sex, ethnic affiliation) are therefore indices of the presumed probabilities of similar patterns of response in the future". Sherwood and his associates maintained that it is possible to assert that a large segment of the variability in the individual's responses to and functioning within real life situations can be explained by his social

position. "...the more 'positions' and experiences an individual has in common with another individual, the greater the probability that they will be like one another with respect to other variables". They maintained that if the groups matched on variables of this type are in fact equivalent, they should manifest similarity in response to the pre-measures of the outcome variables to be used in the assessment of the intervention. Once the sample selection procedure as described by the authors is completed, the assumption is that it has produced equivalent experimental and control groups. Testing for the effects of intervention is then carried out in the same way as if the members had been randomly assigned. The authors pointed out that while the application of probability based statistics is controversial, possible justification for the use of same is as follows:

> pre-intervention equivalence requires that the samples be no more dissimilar initially than "good" random samples, and a decision in this regard requires the application of a statistical test on an "as if they were random basis"; and if the degree of preintervention equivalence is regarded as acceptable, the judgement of post-intervention non-equivalence - the search for intervention effect - would seem to allow and require the same logic and tests on the same "as if" basis. In the first instance the question that is asked is: Is it reasonable to conclude that these two samples are from the same population? In the second instance, the question asked is: Is it reasonable to conclude that they are no longer from the same population? (p.222)

CHAPTER II

METHOD

Setting

Women participating in the study delivered their babies at one of three major hospitals in Vancouver. One of these hospitals offered a family centred maternity care programme during the immediate post-partum period, while the other two hospitals offered a more traditional approach.

The family-centred maternity programme was initiated in November 1971. Its major aims were to provide new parents with an opportunity to practise parenting skills in a supportive environment and to enhance the development of positive relationships among family members.

There are several areas of differentiation between the family centred maternity programme and the more traditional hospital. First, the specific nurse/mother/infant assignment with its individual teaching programme which results in greater continuity of care for the mother and infant. Second, the greater flexibility of the postpartum unit, the mother is free to use the supervised nursery as she wishes; she decides when, and for how long, the infant should be in the nursery. The nurse initially bathes and cares for the infant in the mother's room acting as a role model for the mother. As the capabilities of

the mother increase she undertakes greater responsibility and establishes routines for herself and her infant. Third, fathers are encouraged to participate in the infant care process and have completely flexible visiting hours. With the initiation of the family centred programme several changes were made in hospital procedures with the aim of simulating the home environment. Morning temperature taking was eliminated; meal times were changed for patient comfort; for a nominal cost a husband may eat his meals with his wife. The postpartum floor has a lounge where the mothers may visit with their husbands, watch TV, talk with the other women and eat their meals. Refreshments are available at all times for both parents. In addition there is a patient library and outside deck facilities.

There are some similarities among the three hospitals in this study. All allowed husbands to be present throughout labour and delivery. One traditional hospital emphasized "demand" feeding and babies were bathed in the mother's room, initially by a nursery nurse and subsequently by the mother under the nurse's guidance. This hospital also offered individualized teaching to the mother.

The other traditional hospital had a system of scheduled feedings and the "baby bath" was demonstrated to groups of mothers twice a week, at which times instructions were given regarding infant care, feeding etc. If an individual mother wished to bathe her own baby she

could do so in the nursery under the guidance of a nurse.

Mothers in both traditional hospitals were allowed to keep their babies after feeding before returning them to the nursery and could diaper them if they desired.

Subjects

The women in the study were volunteers who were attending education for childbirth classes with their husbands between September 1974 and November 1975. These classes are offered by two private organizations in Vancouver. A total of 133 primiparous women volunteered to participate in the study. The distribution of these women in each of the three major hospitals in Vancouver and a comparison with a recent survey involving primiparous women, carried out by the Metropolitan Health Services of Greater Vancouver (Khairat & Costanzo, 1974, note 2), is shown in Table I.

A chi square was computed using the percentage of those women entering the three major hospitals at both time periods, this was not significant, $\underline{x}^2$ (2) = .222 $\underline{p} > .90$, indicating that the present sample is a representative one in terms of the hospitals in which the women gave birth to their baby.

Of the total 133 who volunteered to participate in the study, 15 women had their babies in hospitals in cities other than Vancouver and six women did not meet the criterion of delivery of a single full term

infant (2 sets of twins, 3 premature babies, 1 stillbirth). A further six women did not complete the required number of questionnaires — a drop out rate of 4.5%. The final sample consisted of 106 women who did meet the selection criteria. (Appendix A)

Table I

Distribution of the Women in the Three Major Hospitals in the City of Vancouver

Hospital	Present study N=133 Percentage	1974 survey N=1021 Percentage
A	38	34
B	30	25
C	21	18
other	11	19
no response	0	4

The women were white, Caucasians, whose age range was from 19 to 37, with a mean of 27.02 years and a median of 27.00 years. The mean number of years of education was 14.50 — median 14.88. They had no history of psychiatric disorder. The women were raised in North America or the British Commonwealth. The women were married and expecting their first baby. All participants in the study lived in the city of Vancouver or the lower mainland area, and delivered their babies in one of the three major hospitals in the metropolitan area. All women had a single full term infant, and experienced no major medical complications during pregnancy, delivery or the postpartum period of either themselves or of their infants. Detailed demographic data are in Appendix B.

Twelve women in the traditional hospital setting who delivered vaginally had rooming-in with their infants. Given that this was possible only if you had a private room for which you paid extra per day and given the possibility of similarities between rooming-in and family centred maternity care, the data from these women were excluded from the statistical analyses. The total number of women used for the statistical analyses is therefore 94. Of these women 21* had caesarian sections. The data from women in both types of programme were combined for the analyses involving the comparison of vaginal with caesarian section. In view of this, the data from the two women in the caesarian section group who had rooming-in within the traditional

*All but two were emergency caesarian

programme were not dropped from these analyses. The total number of women for each group was as follows:

Family centred maternity programme	
vaginal delivery	20
caesarian section	6
Traditional programme	
vaginal delivery	53
caesarian section	13
Rooming-in	
caesarian section	2

The proportion of caesarian section (excluding the two in rooming-in) by type of programme was not significant, $\underline{x}^2(1) = .13$ $\underline{p} \geq .50$. Neither was the proportion significant including the 2 women who had rooming-in, $\underline{x}^2(1) = .0112$ $\underline{p} \geq 50$.

Measures

The schedule for completion of the various questionnaires and check lists is set forth in Table II.

Attitude towards pregnancy, labour, delivery and the baby questionnaires

The various questionnaires dealing with attitudes and feelings towards the pregnancy and childbirth experience and attitude towards the baby are based on those used by Jordan in her study (1973). The format of each questionnaire was modified slightly to conform to a Likert

Table II

Schedule for Completion of Data
Time Period and Measures Involved

	Time Period	Measures
I	Prenatal Ninth Month	Demographic data questionnaire Feelings and attitudes towards pregnancy Beck Depression Index Depression adjective checklist (DACL) Pleasant Events Schedule
II	In Hospital	Labour and Delivery Questionnaire Feelings towards the new baby questionnaire Areas of Concern DACL - each Greenberg's Maternity Questionnaire
III	After One Week at Home	Feelings towards baby questionnaire Areas of Concern Greenberg's follow-up questionnaire DACL
IV	After Five Weeks at Home	Feelings towards baby questionnaire Areas of Concern Beck Depression Index Pleasant Events Schedule
V	Six Months after Delivery	A check was made with the Postpartum Counselling Centre

type questionnaire in order to help control for response set and acquiescence tendencies. (A higher score on the questionnaire indicates a more positive attitude.) Alpha reliability coefficients (Winer, 1962) were computed as shown in Table III. The reliability coefficients indicate that each questionnaire has internal consistency and homogeneity.

Table III

Alpha Reliability Coefficients for Attitude Questionnaires

Name	N of questions	N of subjects	Alpha
Attitude to pregnancy	40	133	.91
Attitude to labour and delivery	31	121*	.93
Attitude towards Baby Time1	28	121	.80
Attitude towards Baby Time 2	38	121	.94
Attitude towards Baby Time 3	33	121	.90

*

N = 121 excludes the six women who did not complete the study and the six women who did not meet the criteria for selection.

Areas of Concern

The women also completed a check list of problem areas for both themselves and their infants at three points in time; in hospital, after one week at home and after five weeks at home (Jordan, 1973). The purpose of these checklists was to learn of the problems the women experienced at these three time points. The total number of problems was the figure used in the analysis.

Hospital Experience and One Week Follow-up

Greenberg (1973) and his associates devised a questionnaire to learn how the new mother perceived her experience while in hospital. They used it in a similar research study and certain items were found to differentiate groups of women randomly assigned to rooming-in or traditional wards. Although the complete questionnaires were administered, some questions were not appropriate for the proposed statistical analyses, although they will be used for descriptive purposes. Therefore, only relevant items scaleable in the Likert format relating to the hospital experience were used in the statistical analyses. Similarly scaleable items were selected from the follow-up questionnaire. These questionnaires are in Appendices C and D. The higher score reflects the more positive statement.

Depressive Affect

Two measures of depressive affect were chosen that are widely used in the clinical setting. In addition an estimate of behavioural activity was obtained from the women. (a) The Beck Depression Index (Beck, 1961; 1967; 1970). This is a clinically derived inventory concerned with the characteristics, attitudes and symptoms of depressed individuals. It consists of 21 categories dealing with affective, behavioural, cognitive and somatic symptoms. Each category contains graded self-evaluative statements ranging from zero to three. The higher the score obtained, the more depressed the individual. Although the Beck confounds state and trait depression, according to Becker (1974) it is sensitive to change and apparently discriminates depression from anxiety. Analysis has shown good reliability using the criteria of internal consistency and stability and it has been shown to be valid in factor analytic studies. (Cropley, & Weckowicz, 1966; Pichot,& Lemperiere, 1964). Mean scale scores for the category of no depression, mild, moderate and severe depression are 10.9, 18.7, 25.4 and 30.0 respectively. (b) The Depression Adjective Checklists (Lubin, 1965). This is a measure of state depression according to Lubin and consists of 32 adjectives, 22 indicating depressive mood and ten indicating non-depressive mood. This instrument has the advantage of being brief and has alternate forms for the purpose of repeated measures.

The scales have good split half reliability and intercorrelate highly, and "discriminate between normals, nondepressive psychiatric patients and diagnosed depressives". The higher the score obtained on the DACL the more depressed the individual. A raw score of 15 would indicate that a person is mildly depressed.

As would be expected, the Beck Depression Index and Depression Adjective Checklist are significantly but not highly correlated with each other. In the present study, the correlations between these two measures in the ninth month of pregnancy and six weeks postpartum were $r = .448$ $p < .01$ and $r = .478$ $p < .01$ respectively.

Behaviour

The Pleasant Events Schedule devised by MacPhillamy and Lewinsohn (1971) was used. The authors stated that the schedule was designed to elicit events that people have enjoyed over the past month. The instrument consists of 320 events and activities and has been used by Lewinsohn and his colleagues in their studies of the association between depressive mood and activities (Lewinsohn, Libet, 1972; Lewinsohn, Graf, 1973). In the present study the women completed only Part A of the Schedule responding to the question "How often have these events occurred.....?". The total activity score is indicated by the number of items checked.

Hospital Data Sheets for Mother and Infant

These were factual information sheets (Jordan, 1973) completed by the mother and included such items as length of labour, type of anaesthetic, type of feeding, and sex of infant.

Six months after delivery a check was made with the Postpartum Counselling Centre to verify whether any women in the study had sought assistance from the centre.

To ascertain whether the groups of women in each hospital were similar regarding the measures completed within the prenatal period, they were compared on (a) the demographic data and (b) their responses to the questionnaires involving attitude to pregnancy, depressive affect and total activity. One-way multivariate analysis of variance of the set of demographic variables (age, education of wife, income of wife, education of husband, income of husband) revealed no significant difference among those women entering the three major hospitals (Likelihood ratio criterion, lamba = .966, F (10,196) = .34 $p > .50$). The means and standard deviations of the demographic data for the total sample are shown in Appendix E. There was no significant difference among the three groups of women in the set of variables relating to the prenatal period (attitude towards pregnancy, depressive affect or the amount of behaviour engaged in) (λ = .963, $F(8,196)$ = .88 $p > .50$). The means and standard deviations of these data are in

Appendix F. It was felt, therefore, that the women in the three hospitals were comparable in terms of both demographic data and data collected during the ninth month of pregnancy. The data from those women who delivered their babies in hospitals offering the more traditional maternity experience were combined for subsequent statistical analyses.

Procedure

The education-for-childbirth classes were visited at the penultimate class. The groups were told that I was studying the normal woman, expecting her first baby, and her feelings and attitudes toward pregnancy, childbirth, the hospital and early postpartum experience. The group was also informed of the criteria for selection and were told that they would receive a copy of the results of the study when completed. Those women who volunteered signed a consent form and were given the first set of questionnaires in a stamped addressed envelope, to be completed and returned. Upon receipt of the first set, the second and subsequent sets of questionnaires were mailed to the women at the appropriate time.[2]

[2] At the time of the nationwide postal strike in Canada, 21st of October to early December 1975, the questionnaires were picked up and delivered by hand.

A letter was also sent to the physician whose patients were involved in the study, describing the study and inviting questions and/or comments. (Appendix G)

Statistical Analyses

All analyses were carried out in the computing centre at the University of British Columbia, Vancouver, B. C.

The independent variables were (a) type of hospital programme and (b) type of delivery experienced (whether vaginal or caesarian). Several types of analyses were carried out.

1. Differences between the groups on the set of dependent variables at each time period were analyzed using Hotellings T^2 technique for two samples. For each time period the hypothesis was that the groups came from a population with a common mean vector. If the hypothesis were rejected multiple comparisons were made using the "simultaneous confidence interval" to determine which individual dependent variable means were significant (Morrison, 1967).

The conservative feature of this method of multiple comparisons used may well result in an increase in Type 11 error. While this more stringent approach prevents the possibility of overinterpretation of one's data it also prevents the generation of possible hypotheses.

2. To ascertain the effectiveness of the family centred maternity care programme several specific comparisons between this programme and the traditional programme were carried out using univariate analysis of variance. These specific dependent variables were as follows:

a) Amount of self confidence regarding child care in hospital and after having been home for one week.

b) Responses to questions involving the amount of experience gained in hospital in caring for the new baby.

c) Responses to questions regarding the amount of help received in hospital to prepare one for the role of motherhood.

d) Attitude towards the baby while in hospital, after one week at home and after five weeks at home.

3. Women who had vaginal delivery were compared with those who had caesarian section on their feelings of self confidence regarding child care and their attitude towards the baby while in hospital, after one week at home and after five weeks at home, using univariate analyses of variance.

4. A repeated measures analysis of variance was conducted on the levels of depressive affect over time for both the independent variables, i.e., type of programme and type of delivery.

5. In order to ascertain the relationship between the measures collected, the pooled within groups correlation matrices for the sample (N=94) for each point in time were examined. The pooled within groups matrix was chosen in view of the significant differences between the various groups on certain measures. This matrix of correlations is not inflated by these differences.

Although correlation coefficients among a large number of variables are suspect in view of the fact that spurious correlations occur by chance, providing one evaluates them cautiously such relationships are valuable from a heuristic point of view. The pooled within groups correlation matrix for all variables was examined with this in mind. The specific variables that were looked at in terms of their relationship to others were as follows: method of feeding (whether breast or bottle feeding); number of days spent in hospital; number of days spent "rooming-in" with the baby.

6. A principal components factor analysis with a varimax rotation was carried out using the major variables in the study. (Several variables were omitted because of the smallness of the sample.)

CHAPTER III

RESULTS

The descriptive statistics for the total sample regarding length of labour, sex of infant, type of anasthesia, etc., are in Appendix H.

Comparison Between Hospital Programmes

Time 1 - Prenatal data completed in the ninth month of pregnancy

To ascertain whether the groups who participated in the two hospital programmes were comparable with respect to their demographic characteristics and responses to the questionnaires and checklists administered at the ninth month of pregnancy, Hotellings T^2 statistical technique was conducted. There was no difference between the means for either set of variables, F (5,66) = .28 $p > .50$; F(4,67) = .34 $p > .50$. These data are shown in Appendix I and Appendix J respectively. The means for the Beck Depression Index and DACL indicate that the two groups of women are within the normal limits in terms of their depressive affect. The range of scores on the DACL and Beck Depression Index for both groups, however, indicate that there are some women who might be called mildly depressed.

The pooled within groups correlation matrices of these data for the total sample are in Tables IV and V respectively.

Table IV

Pooled within groups correlation matrix for the demographic data. N = 93 *

	Age of Wife	Years of Education - Wife	Income of Wife	Years of Education - Husband	Income of Husband
Age of Wife	1.000	.432***	.152	.112	.341***
Years of Education - Wife			.209**	.364***	.125
Income of Wife				.069	.070
Years of Education - Husband					.117
Income of Husband					

*** $p < .01$

** $p < .05$

* one set of questionnaires for this time period was lost during the mail strike.

Table V

Pooled within groups correlation matrix for the measures collected in the ninth month of pregnancy. N = 93*

	Attitude to Pregnancy	Beck Depression Index	DACL	Pleasant Events Schedule
Attitude to Pregnancy	1.000	- .022	-.325***	- .031
Beck Depression Index			.448***	.081
DACL				- .103
Pleasant Events Schedule				

*** $p < .01$

* one set of questionnaires for this time period was lost during the mail strike

Time II - Hospital data

The responses of the women on the various measures at this point in time were analyzed in two parts. The first analysis of the hospital data involved a comparison of the two groups on the following set of variables; attitude to labour and delivery, attitude to the baby, areas of concern in hospital and amount of depressive affect experienced each day. The means and standard deviations for these data are in Table VI. Hotellings T^2 revealed a significant difference between the two groups of women as a function of the hospital programme experienced, $F(7,65) = 3.67$ $p < .002$. Simultaneous multiple comparisons revealed no differences in the means of the individual variables. Subsequent univariate analysis of variance indicated that the variables contributing most to the overall differences were attitude to baby, $F(1,71) = 4.179$ $p < .045$, and the number of problems, $F(1,17) = 7.917$ $p < .006$. Those women who had participated in the family centred maternity programme appeared to have a more positive attitude to their baby in hospital and also reported more problems than those women in the traditional programme. It should be noted that the women who participated in the family centred maternity programme in Jordan's study reported more problems than did those in the traditional programme. It may well be that the specific nurse assignment and educational philosophy of this type of programme provides an atmosphere conducive to the verbalizing of problems.

Table VI

Means and standard deviation of the hospital data

	Family Centred Maternity Programme N=20		Traditional Programme N = 53	
	Mean	SD	Mean	SD
Attitude to labour and delivery	146.85	12.83	147.06	13.79
Attitude to baby	131.85	13.92	125.02	12.28
Areas of concern	11.60	5.46	8.23	4.20
DACL Time One	46.20	4.85	45.19	5.04
DACL Time Two	46.80	6.25	46.77	7.95
DACL Time Three	50.65	8.84	49.85	10.10
DACL Time Four	50.90	9.96	48.68	8.63

The pooled within groups correlation matrix for the total sample for these data is in Table VII.

The second major analysis of the hospital data was carried out on the responses to Greenberg's maternity questionnaire. Hotellings T^2 shows no difference between the means of the two groups on this set of variables, F (15,57) = .964 $p > .50$. These data are in Appendix K.

While Greenberg and associate had reported significant differences between women in their study this may have been due to the cultural differences in studying a Swedish sample or to the statistical techniques employed to analyze the responses to their questionnaires which may have resulted in Type I errors. The present study used multivariate techniques to control for this and the findings do not support those of Greenberg and his associate.

The pooled within correlation matrix for the responses of the total sample for the above data is in Table VIII.

Time 111 - After one week at home

When the women had been home for one week they completed the attitude to baby question, areas of concern, DACL and Greenberg's follow-up questionnaire. Hotellings T^2 revealed a significant difference between the two groups on this set of variables, F (10,62) = 3.62, $p < .0008$. The means and standard deviations for these measures are shown in Table IX. Simultaneous multiple comparisons, however,

Table VII

Pooled within groups correlation matrix
for those measures completed while in hospital. N = 94

	Attitude to labour and delivery	Attitude to Baby	Areas of Concern	DACL Time 1	DACL Time 2	DACL Time 3	DACL Time 4
Attitude to labour and Delivery	1.000	.431***	.177	-.161	-.105	-.072	-.277***
Attitude to Baby			-.113	-.137	-.172	.015	-.247***
Areas of Concern				.095	.182	.167	.012
DACL Time 1					.710***	.300***	.378***
DACL Time 2						.405***	.359***
DACL Time 3							.313***
DACL Time 4							

*** $p < .01$
** $p < .02$

Table VIII

Pooled within groups correlation matrix of the responses to Greenberg's Maternity Questionnaire N=94

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Self confidence re: child care	1.000	.240*	.197	.143	.220*	.377***	.239*	.158	.631***	.083	.046	-.172	-.084	.019	.075
(2) Perception of amount of help needed at home			.131	.155	.127	.180	.173	-.046	.320***	.090	.008	.022	.013	-.069	-.008
(3) Happiness in hospital				-.084	.055	.137	.130	-.004	.150	.081	-.083	.052	.090	.144	.240*
(4) Present energy level					.149	.180	.222*	-.037	.134	.020	.073	.159	-.038	.096	.053
(5) Absence of anxiety regarding responsibility for baby						.194	.086	-.065	.109	.027	.107	-.040	-.035	-.014	-.153
(6) Confidence regarding role of motherhood							.328***	.488***	.522***	.272***	.137	.095	.032	.202	.067
(7) Present feelings of gladness vs. depression								.275***	.294***	.323***	.130	.117	-.150	.162	-.156
(8) Maternal feeling to baby									.231*	.362***	.254**	-.001	.004	.231*	-.018
(9) Competence re childcare										.277***	.172	-.078	.008	.125	.018
(10) Immediacy of understanding baby's needs											.118	-.118	.000	.006	-.128
(11) Lack of restriction in usual activities												.086	-.093	.048	-.151
(12) Energy level after delivery													-.022	.160	.080
(13) Amount of help from nursing personnel														-.085	.356***
(14) Feelings of gladness/vs depression after delivery															.210*
(15) Amount of help received from hospital personnel															

*** $p < .01$
** $p < .02$
* $p < .05$

Table IX

Means and standard deviations of the
Measures completed after one week at home

	Family Centred Maternity Programme N = 20		Traditional Programme N = 53	
	Mean	SD	Mean	SD
Attitude to Baby	163.25	18.67	160.45	18.28
Areas of Concern	11.50	8.59	8.58	6.78
Self-Confidence regarding child care	3.50	.89	3.47	.77
Ease of adjustment from Hospital	3.50	1.15	3.06	1.00
Experience received in Hospital	3.50	.83	2.60	.97
Preparation for mothering role	3.70	.98	2.96	1.07
Immediacy of understanding infant	3.95	.94	3.62	1.15
Certainty regarding child care	3.40	.99	2.92	.92
Amount of help needed	3.30	.73	3.17	.73
DACL	48.55	8.05	48.55	7.24

indicated no differences between the individual means. The subsequent univariate analysis of variance indicated that two variables contributing most to the overall differences were the amount of help received from the hospital in preparing for the mothering role, F (1,71) = 7.18 $p < .009$, and the amount of experience gained while in hospital in taking care of the baby F (1,71) = 13.43 $p < .0004$.

The pooled within correlation matrix for the above data for the total sample is in Table X.

Time IV - After five weeks at home

After the women had been home for five weeks they completed the following measures: attitude towards baby; areas of concern, Beck Depression Index; the DACL; Pleasant Events Schedule. Hotellings T^2 revealed no differences between the two groups on this set of variables, F (5,67) = .654 $p > .50$. The means and standard deviations for these measures are in Appendix L.

The pooled within correlation matrix of these data for the total sample is in Table XI.

Time V - Six months after delivery

A check with the Postpartum Counselling Centre of Greater Vancouver, indicated that, based on their records, no women in the present study had sought the assistance of the centre within six months after the birth of their baby.

Table X

Pooled with groups correlation matrix of the measures completed after one week at home

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Attitude to Baby	1.000	-.253**	.534***	.490***	.274***	.257**	.364***	.452***	.303***	.057
(2) Areas of Concern			-.072	-.337***	-.062	-.096	-.013	-.090	-.141	.286***
(3) Self confidence re childcare				.455***	.405***	.416***	.270***	.558***	.354***	.077
(4) Ease of adjustment from hospital					.330***	.289***	.410***	.453***	.345***	-.059
(5) Experience received in hospital re: care of baby						.794***	.336***	.362***	.139	.075
(6) Preparation for mothering role							.287***	.318***	.175	.007
(7) Length of time to understand infant								.188	.106	.067
(8) Certainty re childcare									.424***	.021
(9) Amount of help needed										.089
(10) DACL										

*** $p < .01$

** $p < .02$

Table XI

Pooled within groups correlation matrix
for the measures completed after five weeks at home. N = 94

	Attitude to Baby	Areas of Concern	Beck Depression Index	DACL	Pleasant Events Schedule
Attitude to Baby	1.000	-.393***	-.168	-.243**	.218*
Areas of Concern			.198	.148	-.061
Beck Depression Index				.478***	.026
DACL					-.198
Pleasant Events Schedule					

*** $p < .01$
** $p < .02$
* $p < .05$

Across Time - Depressive Affect

The summary of the repeated measures analysis of variance for depressive affect is presented in Table XII. As can be seen, while there is not a significant difference between the two groups in terms of depressive affect, there is a significant difference in the level of depressive affect reported over the time period involved. These differences over time are illustrated in Figure 2. Note that the level of depressive affect peaks at day 3 for those women in the traditional hospital and day 4 for those in the family centred maternity programme. By the sixth week postpartum, the level of depressive affect has returned to the prenatal level for both groups. The peaking at the third and fourth day parallels the reports in the clinical literature of 3 day "blues", four day "blues" or "milk blues" (Pitt, 1973; Baker, 1967).

Evaluation of the effectiveness of the family centred maternity programme compared with the traditional programme

Using analysis of variance three specific variables were analyzed in order to assess the effectiveness of the family centred maternity programme.

a. Self confidence

There was no difference in the level of self confidence of mothers between the two hospital programmes either while in hospital or after one week at home with the baby, $F(1,71) = .733$ $p > .30$ and $F(1,71) = .018$ $p > .80$.

Table XII

Repeated measures analysis of variance
— level of depressive affect over time

Source	dfs	F	p
Mean	1	6254.24	.001
Hospital	1	<1.00	.536
Error	71		
Time	6	3.80	.001
Time/hospital	6	<1.00	.987
Error	426		

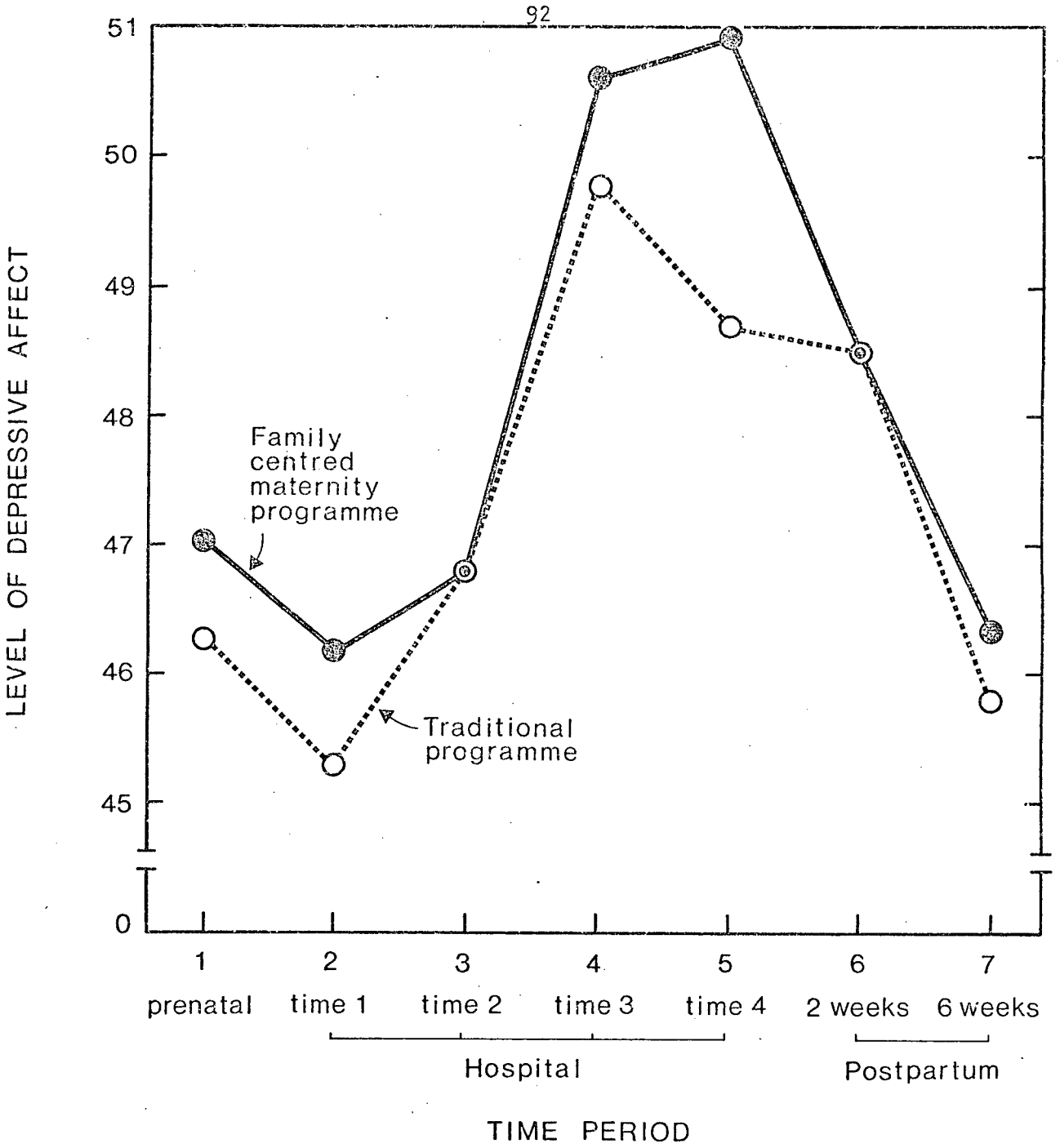


Figure 2. Means of DACL scores at seven points in time: Comparison between hospital programs.

b. Experience gained in hospital in how to care for the baby

The responses of the women in the two programmes to Greenberg's Follow-up questionnaire involving the amount of experience gained in hospital in caring for the new baby were analyzed. A highly significant difference was found between the hospital programmes in the amount of experience received, in favour of those women in the family centred maternity programme, F (1,71) = 13.42 $p < .0004$.

c. Amount of help received from the hospital to prepare the mother for the mothering role

A highly significant difference was found between the two groups of women in the amount of help they received from the hospital to prepare them for the role of motherhood. Those women in the family centred maternity programme perceived that they obtained more help for this role than did those in the traditional programme, F (1,71) = 7.18 $p < .009$.

d. Attitude towards baby while in the hospital, after one week at home and after five weeks at home

As the attitude towards baby questionnaires were not designed for a repeated measures analysis of variance, one-way analysis of variance was used to analyze the data. The results indicate a significant difference in attitude towards baby between the two groups. The women in the family centred maternity programme had a more positive attitude towards their baby while they were in hospital, F (1,71) = 4.179 $p < .045$. After the women had been home for one week and interacting with and

caring for their infants there were no differences in their attitude toward the infant, nor were there any differences after five weeks at home, F (1,71) = .334 $p > .50$ and F (1,71) = 2.19 $p > .143$ respectively.

Comparison Between Vaginal Deliveries and Caesarian Sections

For the following analyses the data were pooled across hospital and the independent variable was type of delivery experienced — vaginal or caesarian section. The data were analyzed in exactly the same manner as were the data for hospital programmes.

Time 1 - prenatal data (completed in the ninth month of pregnancy)

To ascertain whether the two groups were comparable with respect to both their demographic characteristics and responses to the questionnaires and checklists in the ninth month of pregnancy, the data were analyzed using Hotellings T^2. There was no difference between the means for either set of data, F (5,87) = 0.52 $p > .50$ and F (4,88) = 1.44 $p > .20$ in that order. The means and standard deviations for these two analyses are in Appendix M and N respectively. While the means for the measures of depression for both groups indicate that the two groups of women are within the normal limit in terms of their depressive affect, the range of scores on the DACL and Beck for both groups indicate that there are some women within both groups who might be considered to be mildly depressed at this time.

Time II - Hospital data

Hotellings T^2 showed that there was a significant difference between the two groups of women in their responses to the questionnaires completed while in hospital, F (7.86) = 4.43 $p < .0003$. The means and standard deviations for this set of variables are shown in Table XIII. The multiple comparison using simultaneous confidence intervals indicated that there were significantly different group means for two variables — attitude toward labour and delivery and level of depressive affect on the first day postpartum. Those women who had a caesarian section expressed a less positive attitude toward their labour and delivery experience and experienced more depressive affect the first day postpartum than did women who delivered their babies vaginally.

The means and standard deviations for responses to Greenberg's questionnaire are in Table XIV. Hotellings T^2 demonstrated a significant difference between the responses of women as a function of their delivery experience, on this set of variables, F (15,78) = 2.05 $p < .02$, although the multiple comparison indicated no difference between the various group means of the individual variables. Subsequent univariate analysis of variance indicated that women who had caesarians were less happy in the hospital, had less energy and were more depressed after the delivery than were those women who had vaginal deliveries, F (1,92) = 5.57 $p < .02$; F (1,92) = 3.96 $p < .05$; F (1,92) = 8.44 $p < .005$ respectively.

Table XIII

Means and standard deviations of the hospital data

	Vaginal Delivery N = 73		Caesarian Section N = 21	
	Mean	SD	Mean	SD
Attitude to Labour and Delivery	147.00	13.45	120.14	47.88
Attitude to Baby	126.89	13.02	122.14	15.89
Areas of Concern	9.15	4.78	8.52	5.10
DACL Time One	45.47	4.98	50.95	7.08
DACL Time Two	46.78	7.48	51.38	10.10
DACL Time Three	50.07	9.72	53.86	9.66
DACL Time Four	49.29	9.00	51.48	9.12

Table XIV

Means and standard deviation of responses to Greenberg's questionnaire

	Vaginal Delivery N = 73		Caesarian Section N = 21	
	Mean	SD	Mean	SD
Self Confidence regarding childcare	3.30	.78	3.24	.94
Perception of help needed at home	3.73	.84	3.33	.91
Happiness in Hospital	4.03	.64	3.62	.86
Present energy level	2.18	.90	2.05	.97
Absence of anxiety regarding reponsibility of baby	1.44	.53	1.48	.60
Confidence regarding the role of motherhood	4.42	.80	4.48	.75
Present feelings of gladness versus depression	4.27	.92	3.81	1.03
Maternal feeling to baby	4.11	1.11	3.62	1.22
Competence regarding childcare	3.33	.73	3.24	.83
Immediacy of understanding baby's needs	2.05	1.15	2.19	1.50
Lack of restriction in usual activities	2.70	1.05	2.61	.92
Energy level after delivery	2.66	1.56	1.38	.74
Amount of help from nursing personnel	2.41	.81	2.33	.91
Feelings of gladness versus depression after delivery	4.74	.69	4.09	1.41
Amount of help received from hospital personnel	3.14	.90	2.90	1.18

Time 111 - After one week at home

When the women had been home for one week they completed the attitude towards baby questionnaire, areas of concern, DACL and Greenberg's follow-up questionnaire. Hotellings T^2 conducted on these data revealed that there were no differences between the two groups of women on this set of data, F (10,83) = 1.13 $p < .50$. The means and standard deviations for these measures are in Appendix O.

Time IV - after five weeks at home

When the women had been home for five weeks they completed the following measures; attitude towards baby; areas of concern, Beck Depression Index; DACL; Pleasant Events Schedule. Using Hotellings T^2, the analysis of this set of variables demonstrated that there were no differences between those women who had vaginal deliveries and those who had caesarian section, F (5,88) = .80 $p < .50$. The means and standard deviations for these data are in Appendix P.

Across Time

To compare the two groups in terms of depressive affect over the time period involved, a repeated measures analysis of variance was carried out. This indicated a significant difference in level of depressive affect between the groups in terms of type of delivery, and over time. Those women who had caesarian sections reported a greater degree of depressive affect than did those who had vaginal deliveries. The summary table for this analysis is shown in Table XV. These differences

are illustrated graphically in Figure 3. It should be noted that both groups peak at day three and that the mean level of the depression affect of the caesarian group increases between the first week and fifth week at home, more than the mean level of depressive affect for the vaginal group over the same time period. It should be pointed out that the means of both groups are still within the range obtained during the prenatal period.

Table XV

Repeated measures analysis of variance
Level of depressive affect over time

Summary table

Source	dfs	F	p
Mean	1	7921.34	.001
Delivery	1	6.92	.010
Error	92		
Time	6	3.13	.005
Time/delivery	6	1.62	.140
Error	552		

Specific Comparisons

a. Self confidence

In view of Sheashore's findings of less self confidence in mothers who had been separated from their infant, the self confidence of the women was analyzed according to type of delivery. There were no differences in the levels of self confidence between vaginal delivery or caesarian section either while in the hospital or after one week at

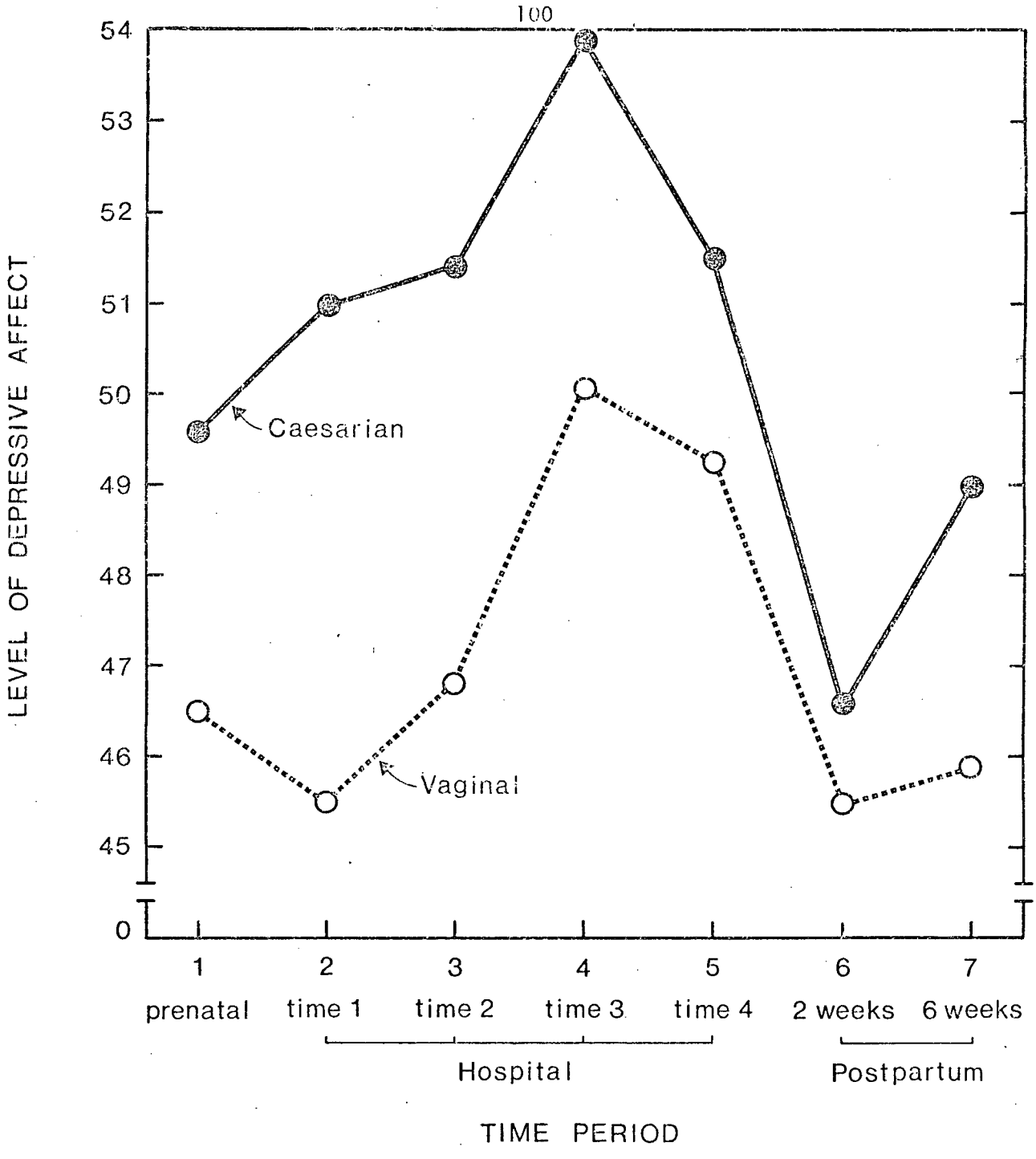


Figure 3. Means of DACL scores at seven points in time: Comparison between types of deliveries.

home. F (1,92) = .098 $p > .755$ and F (1,92) = 2.664 $p > .109$ respectively.

b. Attitude towards baby in hospital, after one week at home and after five weeks at home

As the questionnaires were not designed for repeated measurement, differences in attitudes towards the baby as a function of the type of delivery experienced were analyzed using analyses of variance. There were no differences between these two groups at any of the time points measured. F (1,92) = 2.056 $p > .157$; F (1,92) = 3.131 $p > .08$; F (1,92) = 2.59 $p > .113$.

The pooled within groups correlation matrix for all the variables in the study was examined to ascertain the relationship between (a) method of feeding — whether breast or bottle, (b) number of days spent in hospital and (c) number of days rooming in with infant to other variables in the study.

(a) Bottle feeding significantly related to the following variables:

	rpbi	p
the amount of activity engaged in at the ninth month	-.355	.01
the amount of activity engaged in six weeks postpartum	-.251	.02
the amount of experience that the women felt they had received while in hospital in caring for their baby	-.254	.02

	rpbi	p
self confidence while in hospital	-.243	.02
feeling of competence while in hospital	-.275	.01
feelings of gladness while in hospital	-.245	.02
mother's perception of not needing help at home	-.233	.05
DACL after one week at home	.213	.05
attitude towards baby at six weeks postpartum	-.254	.02

(b) Number of days spent in hospital after the birth of the baby is significantly related to the following variables:

	r	p
age of baby at discharge	.746	.01
feelings of happiness in the hospital	.218	.05
energy level in hospital	-.239	.05
amount of help received from nursing personnel	.287	.01

(c) Number of days spent rooming-in with infant was significantly related to the following variables:

	r	p
bathing baby	.499	.01
attitude towards baby	.241	.05
feelings of self confidence in hospital	.227	.05
feelings of competence while in hospital	.227	.05
feelings of confidence after one week at home	.257	.02

	r	p
ease of adjustment from hospital to home	.261	.02
amount of experience received while in hospital	.479	.01
amount of help received from the hospital	.390	.01
immediacy of understanding the infant's needs	.239	.05
certainty regarding child care	.265	.02
less help needed at home	.214	.05

Factor Analysis

For heuristic purposes the data obtained from the women were subjected to a factor analysis procedure in order to ascertain which variables cluster together. The results should be interpreted cautiously in view of the relatively small sample involved (N=93). The factor analysis procedure used was a principal components technique with a varimax rotation. Four eigen values were greater than unity so four factors were extracted. The factors and their loadings are presented in Appendix Q. Items with loadings greater than .40 were used to identify the meaning of each factor.

The first factor was labelled the hospital experience factor. It included the following variables with loadings greater than .40: Self confidence while in the hospital, ease of adjustment from hospital to home, experience received while in hospital, help received from the

hospital in preparation for the mothering role, immediacy of understanding the infants' needs. Less help needed at home and certainty regarding childcare when first at home also loaded highly on this factor. In addition, number of days spent "rooming-in"[3] with the infant and attitude towards the baby also loaded highly on this factor.

The second factor included demographic variables such as the age and education of the mother and education of the father. The most highly loaded items on the third factor were energy level and feelings of gladness while in hospital. Depressive affect, bottle feeding and longer length of labour loaded in the negative direction on this factor. Attitude towards labour and delivery loaded very highly on the fourth factor.

[3] It was designated thus on the questionnaire. In fact, the only women who had "rooming-in" were the women in the family centred programme and the two women with caesarian sections who had rooming-in in the traditional hospital.

CHAPTER IV

DISCUSSION

In the terms of Runkel and McGrath (1973), this study is basically a natural field experiment. Obviously it was impossible to assign women randomly either to hospital experience or type of delivery. This leaves the possibility of unknown sampling biases very much to the fore. While the present study has the advantage of being relevant in the "real" world, it has all the limitations of applied research and unknown sampling biases will limit the generalizability of the results. While this is typical of evaluative research, it should be noted that "approximately 80% of our (psychology) research is performed on the 3 per cent of the population currently enrolled in college" with an over-representation of male subjects (Schultz, 1969).

The uncontrolled sampling factors of the present study involve the choice of prenatal classes by the participants in the study; the self selection of those who chose to participate and the possibility of selection factors operating in the hospital which the women attended. In addition, there is the inherent problem of differences between volunteers and those who chose not to volunteer. Rosenthal (1965) has summarized some of the research on this problem.

It should be noted that all data in this study involved self-report measures with the limitations of such measures, i.e., all forms of self-

report are susceptible to reactive bias. First, the subject knows that she is the focus of research; second, the respondent may well change in the attitude being measured because of the measurement per se; third, subjective reports are vulnerable to certain types of response sets as well as the "guinea pig" effect (Webb, Campbell, Schwartz, Sechrest, 1966). There are some advantages to the use of self-report however. One gets a more direct measure of individual feelings of the women involved rather than the interpretations of what the women were experiencing and feeling. As Nunnally (1975) concluded, "generally the most valid, economical, sometimes the only, way to learn about a persons' sentiments is simply to ask him". Another important advantage of self-report measures is that they are not as obtrusive as other techniques. Although it would have been useful to have employed other measures, such as behavioural observations, peer reports, and input from nurses, the present data are not as contaminated by reactive effects and expectancy effects as they might have been had these various other measures been utilized.

The women who participated in the study were well educated, and from intact family situations. They were a well motivated group who paid to attend prenatal classes and whose drop-out rate from the present

study was very small (4.5%).

It was not possible to control the time at which the women completed the questionnaires although a very close control was kept in terms of the date of receipt.

Another factor which may affect the study was the inability to control changes occurring within each hospital over the duration of the study; however, from discussion with hospital staffs and the women in the study, it was my understanding that the hospital environment remained fairly stable over the 16 month time period of the study.

Before discussing the implications of the findings of the present study, it should be pointed out that although only the overall multivariate F was significant in several of the analyses, it is not uncommon "to find that no single pairwise difference between any two group means is significant" (Harris, 1975). This lack of significant pairwise differences may be a reflection of the small but accumulative effects of the family centred maternity programme. It may also suggest that the effects of such a programme are more global and thus not amenable to the more specific measures used in the study.

It had been planned originally to compare those women who had received anaesthetic with those women who did not to see if there were any difference in their attitude toward their baby while in hospital. Upon analysis of the data, however, it was found that 93% of the women

received some type of anaesthetic, (Appendix H) thus making such a comparison impossible. It was noted that 40% of those women in the family centred maternity programme had received an epidural anaesthetic compared with 80% of the women in the traditional programme. This is a significant difference, $\underline{x^2}$ (1) = 11.38 $\underline{p} < .001$. It is therefore possible that the more positive attitude of the women in the family centred maternity care toward their baby in hospital is confounded with the use of anaesthetic. Inspection of the pooled within groups correlation matrix, however, revealed a correlation of only —.05 indicating an absence of association between attitude toward baby and use of anaesthetic.

Implications From Major Findings — Hospital Programme

Hofer (1975) stated that in the United States, the research of early parent/child relationships has been entwined in a social movement involving obstetric care. Questions are being asked such as "Should medical and nursing practise, hospital design, obstetric and pediatric procedures be altered on the basis of research evidence now available". Haire and Haire (1968) stated that "The hospital ritual that surrounds childbirth in the United States does much to destroy that cohesive effect that childbirth should have on the forming family unit and thwarts nature's normal plan for the childbearing experience". They stated that "family centred maternity care would do much to correct

the flaws in our concept of conventional maternity care" and their book described how to implement such a programme.

The findings from the present study indicate that the type of hospital programme in which a woman spends her first postpartum days does make a difference in terms of a more positive attitude towards her new baby, and in terms of the amount of experience she receives in how to take care of a new baby and in the amount of help that she receives in hospital to prepare her for the mothering role. This study complements the work done by Klaus and his colleagues inasmuch as they found significant differences in behaviour of primiparous mothers towards their full-term infants as a function of the amount of contact they experienced in hospital. It was found in the present study that the women who participated in the family centred maternity programme and thus determined the amount of contact with their infants had a more positive attitude towards the baby while in hospital than did women in a traditional programme in which nursing policy dictated when the mother should have the baby. Once women had been home for one week, handling and interacting with their babies, these differences disappeared. The fact that the women were a well educated, well motivated group may have served to work against finding longer term differences between the two hospital programmes.

The fact that there were no differences in the level of self confidence of the women in both programmes suggests that this more positive attitude towards the baby was not related to the feelings of confidence and competence gained while caring for their baby by those in the family centred maternity programme. The components of the family centred programme that relate to this more positive attitude remain to be determined empirically. It is possible that the specific nurse/mother/baby assignment has an effect on the mother's attitude towards her baby. It may be that being responsible for and caring for her own infant during this time results in a more positive attitude on the part of the mother in the family centred programme. This would be predicted for example, by Bem's theory of self perception (Bem, 1970).

Support for the benefits of family centred maternity care comes from the significant correlations between attitude towards baby and the amount of help received from the hospital and the amount of experience gained while in hospital caring for the baby. In addition, the significant correlations between variables such as feelings of self confidence and competence, ease of adjustment from hospital to home, for example, and the number of days spent "rooming-in" with the infant (as opposed to the number of days spent in hospital per se) is support for the positive effects of the family centred maternity programme.

The results of the factor analysis indicate that attitude toward labour and delivery was unrelated to the hospital experience factor. This implies that the perception of the hospital experience was unrelated to whether the women had a good or poor delivery experience.

The type of hospital programme experienced appeared to have limited long-term effect on overall postpartum adjustment of the women in the study. At six weeks postpartum there were no differences between the women in the two programmes in terms of depressive affect, behaviour or attitude toward baby.

Type of delivery — Vaginal Compared to Caesarian Section

It should be noted that the difference in attitude toward baby while in hospital only held for the comparison of women in the two hospital programmes. There was no difference when comparisons were made between the women in terms of their delivery experience. There were no differences in attitudes toward baby at the three time points measured between those women who had had vaginal deliveries and those who had had caesarian sections. This finding is the antithesis of what might have been predicted given the research conducted by Klaus and associates. Women who undergo a caesarian section usually suffer more "deprivation" (to use Barnett's terminology) of their infant than do those women having a vaginal delivery. In addition, there is the operative procedure itself and the fact that they have had major surgery.

The results of the factor analysis suggest that in fact a positive attitude towards the baby is unrelated to whether the women had a positive experience during labour and delivery. Possibly the procedures involved with caesarian sections enable women to accept such deprivation more easily and perhaps mothers may accept the deprivation of their infant, given the need for intensive care, more readily than those who have vaginal delivery.

Bottle feeding

A finding that should be interpreted cautiously was the significant negative relationship between bottle feeding and other variables such as the amount of experience women felt that they had received while in the hospital, the feelings of self confidence and competence and attitude toward the baby at six weeks postpartum. This is an interesting finding in light of the emphasis on breastfeeding in local women (85% of present sample breast fed their baby; 75% of Khairat & Costanzo (1974) sample breastfed their babies). It may well be that the women who breastfeed their babies received more attention initially from the nursing staff in order that the mother and child have a good beginning. This in turn may be related to the amount of perceived experience being gained in hospital. The fact that bottle feeding relates to less self confidence and competence is perhaps explainable in light of the emphasis in the media

and prenatal classes on the positive aspects of breast feeding for both mother and child. The women who bottle feed their baby feel more depressed and have less confidence in their own abilities, in addition to going against the 'norm' of their peer group.

Depressive Affect

Friedman (1974) suggested that the term depression be employed in three ways. First as an affect, second as a clinical state and third as a character style. He stated that although this is not a new way of conceptualizing depression it has been rather neglected until now. Friedman maintained that like anxiety, depression can refer both to a basic feeling and a more defined clinical state. Depressive affect refers to a basic feeling of sadness which is part of the fabric in life and which is noted in states of grief and period of disappointment. Clinical depression, on the other hand, refers to a complex of symptoms including the affect of depression and also "...other affects such as anxiety, guilt, hostility as well as motivational, vegetative and cognitive disturbances".

Miller's (1975) review of the psychological deficits in depression showed that such deficits depend largely on severity of depression rather than type of depression, and that depressed subjects in normal populations are generally characterized by deficits similar in nature but smaller in degree to those of depressed patients.

The repeated measures analysis of the depressive affect indicated

that there was no difference over time between the group of women who delivered vaginally. This finding supports clinical observations, (and previous studies of postpartum depression and/or blues) insofar as the level of depressive affect peaks on the third and fourth day. The present data are consistent with the argument for a hormonal basis for depressive affect during this time period as the peaking was demonstrated in all groups (vaginal and caesarian within each hospital programme).

The women who had experienced a caesarian section were significantly more depressed than those who had vaginal deliveries. Given that there were no significant differences between the two groups initially $F\ (1,92) = 3.535\ p > .063$, this suggests that having a baby by caesarian section is a less positive experience than having a baby vaginally. This is supported in the present study by the finding that these women also had a significantly less positive attitude toward their labour and delivery experience than those who delivered vaginally. It is unfortunate that a long-term follow-up was not feasible in order to obtain more information regarding the level of depressive affect of women who had caesarian section. It is possible that the increase in level of depressive affect seen at six weeks postpartum in this group was the beginning of a continuing trend.

While the present sample of women were not clinically depressed there are some significant correlations between amount of depressive affect as measured by the DACL and other variables at each time period. For example, in the ninth month of pregnancy depressive affect was related to a less positive attitude towards pregnancy; in hospital depressive affect was related to less positive attitude towards labour and to delivery and towards the baby. At the six weeks' postpartum period depressive affect was again related to less positive attitude towards the baby. In addition, the level of depressive affect was positively related to bottle feeding and to the number of problems encountered by the women during their first week at home. The positive relationship between depressive affect and bottle feeding to some extent supports the findings of Pitt (1973) who stated that women who had the "blues" differed from those who did not only in that they experienced more difficulty in breast feeding. The responses to Greenberg's hospital maternity questionnaire indicated that the mother's feelings of depression related to less self confidence in caring for the baby; less energy while in hospital; less confidence regarding the role of motherhood and an increased length of time taken to understand the need of the baby.

The above relationship between depressive affect and other variables is consistent with several psychological theories of depression.

Beck (1967, 1971, 1974) postulated a cognitive theory of depression in which depression is seen as a result of a triad of cognitive disturbances which predispose an individual to various forms of thought and behavioural characteristics of depression. The components of this triad are "a negative view of the future, of the environment and of himself". It could be maintained that the women who experience depressive affect therefore tend to see their experiences in a less positive light, have a less positive attitude towards their baby and see themselves as less able to care for the baby competently.

The present findings are also consistent with the behavioural theories of depression of Costello (1972), Lewinsohn and his associates (1976) and Seligman and his associates (1976).

Costello's (1972) theory of depression would suggest that the women who had caesarian sections were depressed because "the reinforcement effectiveness of all the components of a chain of behaviours is contingent upon the completion of the chain at either an overt or covert level". Caesarians did not complete the chain of childbirth for which they had trained.

Lewinsohn (1976) pointed out that the concept of reinforcement is central to the analysis "of dysphoria and the other events which are frequently encountered among persons diagnosed as depressed", and to the development and maintenance of the depressive syndrome.

According to Lewinsohn, the behavioural model "focuses on the effects which a reduction in the rate of response contingent positive reinforcement is assumed to have on the behaviour of the individual". This reduction can occur in three ways. First, events contingent on behaviour may not be reinforcing. Second, events which are reinforcing may become unavailable and third, the individual is unable to elicit reinforcing behaviour because of the lack of skill. According to Lewinsohn (1974) the total amount of response contingent positive reinforcement is a function of three variables.

1. The number of potentially reinforcing events or activities.
2. Availability of reinforcers in the environment.
3. The instrumental behaviour of the individual — the extent to which he possesses the skills to elicit reinforcement from the environment.

Lewinsohn pointed out that the behavioural theory would predict depression for an individual who achieved a goal for which he has worked hard if the reward turns out to be a weak reinforcer.

The findings from the study are also consistent with the learned helplessness model postulated by Seligman (1971) who proposed this concept as a laboratory model of depression in humans. In his opinion, depression is caused by experience in which an individual's responses cannot control the appropriate reinforcers. Seligman stated that

reactive depression may have its roots in the loss of control over gratification and the alleviation of suffering. According to Seligman (1976) the model claims that many depressions are caused by uncontrollable situations which lead the subject to believe that his/her responses are generally ineffective in obtaining reinforcement. The results of his latest study support the above model which claims that "(a) uncontrollable events induce distorted perceptions of response-reinforcement independence in non-depressed people which cause performance deficits parallel to those found in naturally occurring depression and (b) that experience with controllable events reverses the perceptions of this independence and the performance deficits associated with both helplessness and depression."

Given the lack of differences in level of depressive affect before the birth of the baby, the findings of significantly more depressive affect after delivery suggests that caesarian section was a weak reinforcer for these women. The women in the present study trained as a team with their husbands for the birth of their baby. This behaviour was not completed and the women found that all they had learned could not be put to use. The birth of their baby was suddenly taken out of their control, something for which the women were not prepared, and, in addition, there were the stressful aspects of surgery and post-operative procedures. It remains to be investigated empirically whether the women

actively see themselves as having less control. The level of depressive affect may have increased due to feelings of tiredness, lethargy etc. due to the operation; or because their husbands could not be present at the delivery.

McLean (1976) proposed a theory in which depression is seen as the "consequence of ineffective coping techniques used to remedy situational life problems". Figure 4 is McLean's schema to illustrate his proposition.

Figure 4

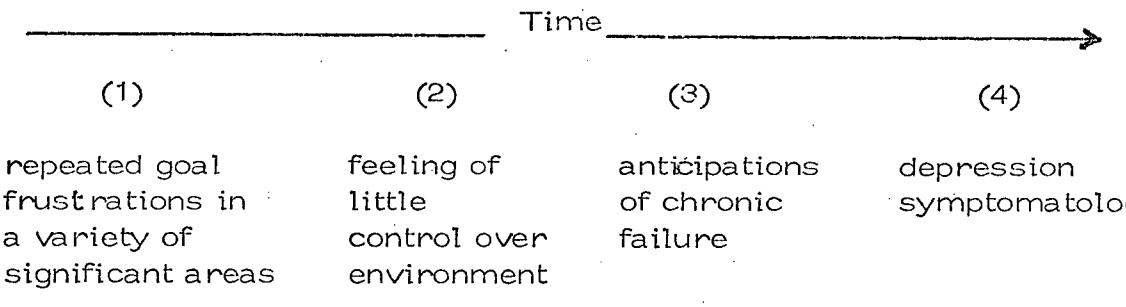
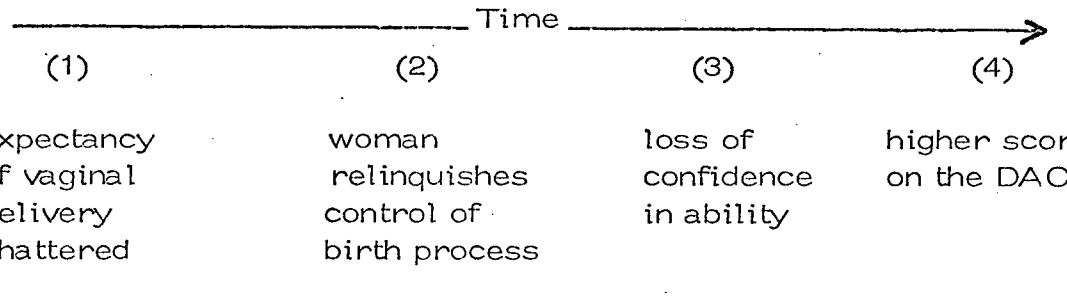


Figure 5 is a modification of the above using the perception of having a caesarian section as the ineffective coping technique. (courtesy of McLean, 1976).

Figure 5



It would be interesting to speculate whether the same relationship between depressive affect and less positive attitude toward pregnancy, toward the baby and to other variables would be found in a clinically depressed population.

What is the relationship between depressive affect and disorders of mothering, the most severe of which result in child abuse? Is there a relationship between depressive affect in pregnancy, caesarian section and child abuse? This remains to be empirically determined but the present research suggests the need for further research to clarify such relationships. As Helfer pointed out the precipitating event for child abuse may be a difficult pregnancy and/or delivery; that abused children have a caesarian section rate much higher than that of the general population.

McLean (1976) asked, "What effect, if any, does parental depression have on effective parenting?" He stated that although there are no empirical studies in the literature, information from several sources indicates that effective parenting and absence of depression are related. According to McLean, evidence from studies of self report, effect of parental modelling and self esteem in pre-adolescents suggest two hypotheses regarding the presence of parental depression. First, that parental depression may render parents less capable of effective parenting and second, that parental depression provides an opportunity for children to

acquire ineffective interpersonal coping strategies through parental modelling.

The low but consistent relationships of depressive affect to such variables as confidence in mothering ability, increased length of time taken to "know" the baby, less self confidence in caring for the baby in a sample of women who are not clinically depressed suggests the efficacy of a preventive approach.

Clinical Implications

Seligman (1976) found that the behavioural immunization techniques provided an early and effective means of preventing learned helplessness in animals. There is evidence in the psychological literature dealing with stress that such techniques work well for humans.

Johnson and Leventhal (1974) state that many theories suggest that negative affect is "a product of discrepancies between current experience and prior expectation". Johnson (1973) suggests that inaccurate expectations regarding sensations produced by noxious stimuli are the critical source of negative affective responses. Thus, Johnson considers that if a person accurately anticipates how a noxious stimulus will feel he/she will be less fearful. She found that accurate expectations about the physical sensations to be experienced reduced the stress caused by painful stimuli. The results of her study supported the hypothesis that preparatory information which reduced the incongruities between

expected and actually experienced sensations was associated with less intense emotional responses during painful stimuli. Johnson and Leventhal (1974) cite studies of fear communication suggesting that "...behavioural preparation, detailed instructions on how and when to act, and prior rehearsal of specific actions are necessary for subjects to sustain control over external threats". They conclude by stating that their studies have shown that "specific types of information can be used to reduce aversive responses and to strengthen effective coping responses ..."

Meichenbaum and Turk (1976) state that behaviour therapy is shifting its emphasis to a coping skills model and describe the stress innoculation training procedures in which subjects are provided with a prospective defense, or set of skills, to deal with future stressful situations, using cognitive manipulations such as imagery rehearsal, self instructional training, and relaxation training techniques. They discuss studies showing the successful application of such innoculation training in control of phobias, interpersonal anxiety and control of anger in the psychological realm. These procedures have also been used in the physical realm of pain control. They discuss the clinical potential of such a preventive approach for handling both physical and psychological stresses. Langer, Janis and Wolfer (1975) reported on the reduction of psychological stress in surgical patients using two

stress reduction strategies in a field setting. It was found that the coping device (cognitive reappraisal of anxiety-provoking events, calming self-talk and cognitive control) which was portrayed as a way of controlling one's emotions, was more effective in reducing pre-and post-operative stress than the technique of giving preparatory communications about what to expect,combined with reassurance.

Klusman (1975) showed that prenatal anxiety was reduced in an education-for-childbirth class which used exercises, breathing techniques and gave women a sense of participating in and control over the childbirth process. Anxiety was not reduced in the control prenatal class which emphasized baby care and in which preparation for childbirth was limited to information regarding labour and delivery.

In order to teach coping skills and to emphasize the individual's ability to control the situation, the prenatal classes which the women in the present study attended used stress innoculation techniques. Given the research on pain and anxiety one might predict that these classes would be effective. (There are,however, few systematic studies of the efficacy of education for childbirth classes.)

Discussion with prenatal class teachers indicates that caesarian sections are regarded as an abnormal aspect of childbirth and, although mentioned as a possibility, they are not discussed in any significant detail. Given that the present rate of caesarian section in

Vancouver is approximately 20% and given the possibility that the number of caesarians will tend to rise in view of the increasing use of fetal monitoring equipment, it does not make sense to ignore caesarian sections. The present findings of significantly more depressive affect in women who have had caesarian sections together with the findings of research into stress innoculation and behavioural immunization techniques and coping skills, indicate the need for greater attention focused on caesarian section in prenatal class training.

The Myth of Maternal Instinct

Janeway (1971) states the following:

> Women are not trained to be mothers in our society, or indeed in any society... The very fact that our society does train initiates formally for most jobs ...makes woman's role archaic and atypical in that women still learn by doing. They take on the vital, creative, important, central concern of their lives (they are assured), with very little advice or background. New mothers are expected to act by instinct; and this expectation in itself sets them apart from the rest of society, where people assume that they will be taught the basic rules of the jobs they have to do. The expectation that they will be able to act by instinct sets women apart, also by suggesting that they operate on a more primitive level than is normal for the rest of our world.

Only very recently has attention been paid to the needs of the woman in preparation for motherhood as opposed to preparation for childbirth. (The same may be said for fathers who receive even less attention.)

Standard procedure has been prenatal classes with little or no emphasis on the postnatal period and "life with baby". This may have been due in part to the myth of maternal instinct which assumes that love is enough and that because a woman has had a baby she both loves it and knows what to do. Of the participants in the study (N=106) 46% stated that they developed a strong maternal feeling toward their baby immediately after the birth; 33% developed this feeling within three days, while the remaining 21% did not have this feeling by the time they left the hospital.

Regarding the length of time that the women thought that it would take to "know" the baby, e.g., the reason for which he/she cried, the frequency was as follows:

I know him/her already	43%
3 days	27%
one week	19%
one month	3%
more than one month	8%

The finding that those women in the family centred maternity programme had a more positive attitude toward their baby and gained more experience and assistance from the hospital in their new mothering role suggests that components of mothering behaviour can be learned (in addition to the correlation between positive attitude toward the baby, and ease of adjustment, feelings of competence and self confidence;) that with learning come increased confidence and feelings of competence, a more positive attitude toward the baby and a decrease in depressive

affect. The significant correlations between depressive affect and number of problems experienced after one week and five weeks at home support this, as does the relationship between depressive affect and less positive attitude towards the baby. This is consistent with Bem's theory of self perception which predicts that attitudes follow behaviour (Bem 1965; 1967; 1970; Jones & Gerard 1967; Calder and Ross 1973), and that a person infers his attitude by observing his own behaviour and the context in which it occurs.

Prenatal class teachers believe that the prenatal time is not the most propitious for teaching parenting skills. One suggestion based on the present study is that postpartum classes for parents and their infants be incorporated into the education for childbirth classes as soon as feasibly possible after the birth of a baby. These classes could include such items as parenting skills as well as dealing with the emotions and feelings of the new parents. Such classes could also serve as a vehicle for the detection of parents who have particular difficulties in their relationship with their infant with a view to the prevention of mothering disorders.

Conclusion

Search for the Holy Grail

In discussing the concept of "health", Kissick (1972) stated that it is both a commonplace word and an illusive concept frustrating

description and quantification. He states, "In a sense health is an abstraction that may be viewed as the 20th century equivalent of the Holy Grail — the never-to-be-attained object of a relentless search".

Cowen (1973) stated that primary prevention in mental health seeks (a) to forestall dysfunction by reducing the rate of occurrence of disorder in the population at large and (b) to promote psychological health and wellbeing. Cowen saw primary prevention as a "bonafide conceptual alternative to mental health problems" and stated that to be effective primary prevention should be actively oriented to the effects of environments and the settings on development. Primary prevention typically does not occur until a child reaches pre-school age (three). The years from birth to school age have often been described as the "silent years" (Stephenson, 1976, note 3). Kellam (1972) pointed out that "Firstgraders are the youngest total subpopulation in the community, i.e. the youngest age other than birth at which names and address are known". This may be so; however there is a convergence in the literature indicating that pregnancy, childbirth and subsequent motherhood should be the focus of sustained interdisciplinary research and intervention actions. Murphy and Chandler (1972) make an eloquent plea in this vein. They state that in agriculture "prevention" of disease or of growth failure is seen largely in terms of providing for health and sturdy growth. "Scientific data relevant to the total development are made accessible from federal,

state and county agencies and are readily applied to growth of cattle, hogs, wheat and corn". They discuss the situation in the automobile field, where the consumers' advocate, if not the consumer, demands repair of recognized defects in cars, the development of safety checks, finding ways of improving the roads and developing better control of traffic with the ultimate aim of reducing percentage of deaths and injuries that occur each year. Murphy and Chandler compare this with the failure to produce healthy children. They state that the utilization of all scientific knowledge relevant to the optimum development in the area of children is spotty and inadequate. They cite the 161,000 infant deaths each year (U.S.) and the related birth hazards which predispose the infant to disturbance of functioning in all areas.

Murphy and Chandler cite the work of Pasamanick and his associates as demonstrating the close relation of major forms of disturbance in development on the one hand with pregnancy and birth on the other. They ask "Can we think in terms of a comprehensive programme to produce stronger babies, better equipped for survival in a changing stressful culture, comparable to the programmes for agricultural productivity?"

Hofer (1975), Chairman of the Ciba Foundation Parent-Interaction Symposium writes ..."we have come to recognize that the early-parent infant relationship has a profound impact on the development of

emotional behaviour, cognitive faculties, even biological organization and resistance to illness".

According to Kessler and Albee (1975):

> The National Association for Mental Health has prepared one of the most specific blueprints for action in primary prevention. It gives actual steps to be taken by citizens' groups in their community to achieve the goal of the prevention of later emotional disturbance. The NAMH proposal focuses specifically on prenatal and perinatal conditions as areas where definite action should be taken. The time from conception to 6 months after birth was chosen as the action period. Among the actions recommended are prenatal and perinatal care affecting the expecting mother and the developing fetus, ways of coping with life crisis situations affecting the mother particularly, the development of better parenting skills, the modification of the social system which may be expected to be a source of stress if unmodified (welfare, medical care, day care etc.) and the insurance of adequate medical care for mother and infant following birth . (p.573)

The writer feels that we should stop searching for the illusive Holy Grail and start putting into effect some of the present knowledge attained from service and research. There is an increasing awareness of the importance, physically, developmentally, mentally, emotionally cognitively for both parents and children of the whole time period of pregnancy, childbirth and early infancy. Instead of the relentless search we need relentless multi-disciplinary action and focus on this period. It can be done. Finland for example has a strong and free preventive service for antenatal care, hospital delivery, postnatal care and preschool child-health care (Wynne and Wynne, 1974), along with homemakers and home helps which are considered essential preventive services. Finnish law

established one Child Health Centre in every local authority in 1944. There is a schedule for developmental assessment requiring examination at monthly intervals for those babies under 12 months. It is the policy in Finland that a child have at least one developmental examination per year up to school age. The Wynne report states that "The coverage of these children is coverage of their homes and of their parents. The Child Health Centres teach parents nutrition, the management of minor ailments and of behaviour problems, the importance of play and of stimulation in the home". There is delegation downwards for the operation of the maternal and childhealth services from the provincial governments to the local governments. This delegation of authority is accompanied by obligations that ensure that the local governments have strong preventive services. In addition, there is accountability of two kinds on the part of the local authority, to the Minister of Health; accountability for the financial expenditures and, more significantly, accountability for performance. As a result Finland has become one of the world leaders in maternal and child health. It can be done elsewhere. As Stallworthy (1972) pointed out,"Obstetrics is no longer an exercise in mechanics but an opportunity for practising preventive medicine at its best".

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Appendix A

Criteria for inclusion in the study:

1. White, caucasian
2. Live in Lower Mainland or Vancouver
3. Raised in North America or the British Commonwealth
4. Married - legally or common-law
5. No history of psychiatric disorders
6. Primiparous
7. Delivered of a single infant in one of three major Vancouver hospitals
8. No major medical complications during pregnancy, delivery or the postpartum of either the mother or infant.

Appendix B

Description of demographic characteristics for sample of women in the present study

1. AGE OF WOMEN

Years	N=106 No.	N = 94
19 - 24	23	21
25 - 30	69	60
31 - 35	13	12
37	1	1

2. BIRTHPLACE OF WOMEN

Country	N= 106 No.	N = 94
Canada	87	76
Britain	9	9
U.S.A.	5	5
Australia	3	2
European	2*	2

3. YEARS OF EDUCATION

Years	N = 106	N = 94
Under 12	4	3
12	33	26
13	8	8

* came to Canada as infants, raised in Vancouver, B.C.

Years	N = 106	N = 94
14	9	6
15	8	8
16	22	21
17	19	19
18	2	2
no response	1	1

4. MAJOR OCCUPATIONS OF WOMEN

	N = 106	N = 94
Nurses	20	18
Teachers	19	17
Secretaries	16	14
Housewives	16	15
Other	35	30

5. EMPLOYED DURING PREGNANCY

	N = 106	N = 94
1 - 3 months	12	11
4 - 5 months	13	10
6 - 7 months	37	34
8 months	20	17
9 months	7	7
not employed	16	14
no response	1	1

6. PLANNING TO RETURN TO WORK AFTER THE BIRTH OF THE BABY

	N=106	N=94
Within two months	11	11
before six months	19	16
after six months	7	7
unsure	11	8
not returning to work	56	50
no response	2	2

Appendix C

Greenberg Maternity Questionnaire - Selected Questions

1. After having been in the hospital for about one week, I now feel that my self-confidence on the question of child care is
   - Very large (5)
   - Rather large (4)
   - Neither large nor small (3)
   - Rather small (2)
   - Very little (1)

2. Do you think that you will need help in the home the first time?
   - No, not at all (5)
   - Yes, a little (4)
   - Yes, a moderate amount (3)
   - Yes, a large amount (2)

3. Which of the following is true for you?
   - I have been very happy in the hospital and I am thus not in such a hurry to go home (5)
   - I have been happy at the hospital but I still would like to go home as soon as possible (4)
   - I have not been especially unhappy in the hospital but I still want to go home very much (3)
   - I have been unhappy in the hospital and want to go home very much (2)

4. At this time how do you feel?
   - Very tired (1)
   - A little tired (2)
   - As usual (3)
   - Pepped up (4)
   - Full of energy (5)

5. Check what is true for you.
   - I think that this new baby is a great responsibility and I am very anxious about his care (1)
   - I think that this new baby is a great responsibility but I am not anxious about his care (2)
   - I don't think that this baby is such a great responsibility but I am still anxious about his care (3)
   - I don't think that this baby is such a great responsibility and I am not anxious about his care(4)

6. How do you feel about your coming role of being a mother?
   I am happy about it and feel confident in myself (5)
   I am happy but a little uneasy (4)
   I am a little anxious (3)
   I am a little anxious and uncertain (2)
   I am very anxious (1)

7. At this time how do you feel?
   Very glad (5)
   Glad (4)
   As usual (3)
   A little sad (2)
   Depressed (1)

8. Many mothers don't develop a strong feeling towards the baby right away. This is completely normal. When did you first get the feeling that the baby was all yours?
   Immediately after the birth (5)
   After the first 3 days (4)
   After the first week (3)
   It's coming but I don't quite have it yet (2)

9. After having been in the hospital for about one week, I now feel that my competence on the question of child care is
   Very large (5)
   Rather large (4)
   Neither large nor small (3)
   Rather small (2)
   Very little (1)

10. How long do you think that it will take you to know your infant; the reason for which he cries etc.
   I know him already (6)
   Three days (5)
   One week (4)
   Two weeks (3)
   One month(2)
   More than one month (1)

11. How much do you think that the baby will restrict your usual activities?
   Not at all (5)
   A little (4)
   Somewhat (3)
   Moderately (2)
   Greatly (1)

12. How did you feel after the delivery?
    Very tired (1)
    A little tired (2)
    As usual (3)
    Pepped up (4)
    Full of energy (5)

13. How much help did you receive from the nursing personnel?
    A little (1)
    Rather much (2)
    Much (3)
    A great deal (4)

14. How did you feel immediately after the delivery?
    Very glad (5)
    Glad (4)
    As usual (3)
    A little sad (2)
    Depressed (1)

15. Did you feel that the help that you received from the hospital personnel was
    More than enough (5)
    About right (3)
    Not enough (1)

Appendix D

Greenberg's Follow-up — Selected Questions

1. After having been at home for about 1 week, I now feel that my self confidence in the question of child care is
   - Very large (5)
   - Rather large (4)
   - Neither large nor small (3)
   - Rather small (2)
   - Very little (1)

2. Did you feel that your adjustment from the hospital to the home was
   - Very easy (5)
   - Easy (4)
   - Neither difficult nor easy (3)
   - Difficult (2)
   - Very difficult (1)

3. How much experience did you feel that you received while in the hospital (Experience in how to take care of a baby)
   - Very large (5)
   - Rather large (4)
   - Neither large nor small (3)
   - Rather small (2)
   - Very little (1)

4. I felt that the maternity hospital helped me
   - Very much (5)
   - Rather much (4)
   - Neither little nor much – to be prepared for my role
   - Rather little (2) of being a mother
   - Very little (1)

5. How long do you think it will take for you to know your infant the reason for which he cries, etc.
   - I know him already (5)
   - Two weeks more (4)
   - One month more (3)
   - Three months more (2)
   - More than three months (1)

6. When I first came home from the maternity hospital I felt

Very certain (5)
Rather certain (4)
Neither certain nor uncertain (3) -- about the question of
Rather uncertain (2) how one should take care
Very uncertain (1) of a newborn baby

7. How much help did you need when you first arrived home from the hospital?

None (5)
A little (4)
A moderate mount (3)
A large amount (2)

Appendix E

Means and Standard Deviations for the Demographic Data of Women who Delivered Their Babies in the Three Major Hospitals in Vancouver, British Columbia

	Hospital A N=26		Hospital B N=34*		Hospital C N=45	
	Mean	SD	Mean	SD	Mean	SD
Age	27.35	3.60	26.88	3.45	26.93	2.90
Number of Years of Education — Wife	14.62	1.81	14.62	2.13	14.33	2.24
Annual Income of Wife	$5,808	$2,522	$6,147	$2,159	$6,378	$1,946
Number of Years of Education — Husband	15.69	3.16	15.44	3.16	14.88	2.99
Annual Income of Husband	$13,827	$5,600	$13,706	$4,488	$13,100	$4,609

*The prenatal data from one woman in this group were lost in the mail and not recovered.

Appendix F

Means and Standard Deviations of the Measures Collected in the Ninth Month of Pregnancy for the Women Who Delivered Their Babies in the Three Major Hospitals in Vancouver, British Columbia

	Hospital A N=26		Hospital B N = 34*		Hospital C N=45	
	Mean	SD	Mean	SD	Mean	SD
Attitude to Pregnancy	165.27	20.49	163.88	15.19	158.98	38.48
Beck Depression Index	5.65	2.90	6.41	3.67	5.84	3.78
DACL	47.50	7.55	47.12	6.67	46.93	6.88
Pleasant Events Schedule	70.88	13.30	67.09	21.95	67.56	18.87

*The prenatal data from one woman in this group were lost in the mail and not recovered.

Appendix H

1.	LENGTH OF GESTATION	N=106	N=94
	Over 40 weeks	38	34
	40 weeks	30	27
	38 - 39 weeks	26	24
	36 - 37 weeks	6	4
	less than 36 weeks	2	2
	no response	4	3
2.	LENGTH OF LABOUR	N=106	N=94
	Under 5 hours	18	15
	5 - 8 hours	25	21
	9 - 19	36	34
	over 20 hours	23	20
	no response	4	4
3.	METHOD OF DELIVERY	N=106	N=94
	Caesarian	21	21
	Vaginal	85	73
4.	ANASTHETIC	N=106	N=94
	Spinal	7	6
	Epidural	63	56
	Perineal Block	11	11

		N=106	N=94
	Nitrous Oxide	17	14
	Other	8	7
5.	SEX OF INFANT	N=106	N=94
	Female	49	48
	Male	57	46
6.	BIRTHWEIGHT OF INFANT	N=106	N=94
	Over 3,600 grammes	31	28
	Over 3,375	24	21
	Over 3,150	14	13
	Over 2,925	18	16
	Over 2,700	14	12
	Over 2,475	5	4
7.	METHOD OF FEEDING	N=106	N=94
	Breastfeeding	91	80
	Bottle feeding	11	10
	Both	4	4

Appendix I

Means and standard deviations for the demographic data

	Family centred maternity programme N=20		Traditional Programme N=52 *	
	Mean	SD	Mean	SD
Age	27.40	3.07	26.79	3.36
Number of Years Education — Wife	14.40	1.76	14.40	2.26
Annual Income of Wife	$5,950	$2,559	$6,106	$2,197
Number of years Education — Husband	15.60	3.32	15.10	3.02
Annual Income of Husband	$13,550	$6,149	$12,606	$4,793

* The prenatal data from one woman in this group were lost in the mail and not recovered

Appendix J

Means and standard deviations of the measures collected in the ninth month of pregnancy

	Family Centred Maternity Programme N=20		Traditional Programme N = 52*	
	Mean	SD	Mean	SD
Attitude to Pregnancy	166.05	19.19	165.25	15.24
Beck Depression Index	5.55	2.54	5.92	3.00
DACL	47.05	7.06	46.29	6.30
Pleasant Events Schedule	71.30	13.75	69.63	20.07

* The prenatal data from one woman in this group were lost in the mail and not recovered

Appendix K

Means and standard deviation of responses to Greenberg's questionnaire

	Family Centred Maternity Care Programme N=20		Traditional Programme N=53	
	Mean	SD	Mean	SD
Self Confidence regarding childcare	3.40	.60	3.26	.84
Perception of help needed at home	3.90	.79	3.66	.85
Happiness in Hospital	4.05	.76	4.01	.60
Present energy level	2.15	1.04	2.19	.86
Absence of anxiety regarding responsibility of baby	1.40	.50	1.45	.54
Confidence regarding the role of motherhood	4.30	.80	4.47	.80
Present feelings of gladness versus depression	4.25	.85	4.28	.95
Maternal feeling to baby	3.75	1.29	4.25	1.02
Competence regarding childcare	3.45	.76	3.28	.72
Immediacy of understanding baby's needs	1.80	1.06	2.15	1.18
Lack of restriction in usual activities	2.35	1.09	2.83	1.01
Energy level after delivery	2.30	1.42	2.79	1.60
Amount of help from nursing personnel	2.55	.76	2.36	.83
Feelings of gladness versus depression after delivery	4.55	.83	4.81	.62
Amount of help received from hospital personnel	3.30	1.17	3.08	.78

Appendix L

Means and standard deviations of
the measures completed after five weeks at home

	Family Centred Maternity Care Programme N=20		Traditional Programme N=53	
	Mean	SD	Mean	SD
Attitude to Baby	176.30	16.33	182.17	13.87
Areas of Concern	8.20	4.77	6.06	6.02
Beck Depression Index	5.05	3.99	4.72	3.47
DACL	46.35	6.60	45.79	10.77
Pleasant Events Schedule	59.60	18.74	62.09	20.88

Appendix M

Means and standard deviations for the demographic data

	Vaginal Deliveries N=72*		Caesarian Section N=21	
	Mean	SD	Mean	SD
Age	26.96	3.26	27.62	3.63
Number of Years of Education — Wife	14.40	2.12	14.81	2.11
Annual Income of Wife	$6,063	$2,286	$6,405	$1,729
Number of Years Education — Husband	15.24	3.09	15.81	3.17
Annual Income of Husband	$12.868	$5,177	$14,595	$3,826

* The prenatal data from one woman in this group were lost in the mail and not recovered

Appendix N

Means and standard deviations of the measures collected in the ninth month of pregnancy

	Vaginal Delivery N=72*		Caesarian Section N=21	
	Mean	SD	Mean	SD
Attitude to Pregnancy	165.47	16.30	158.10	40.15
Beck Depression Index	5.82	2.87	5.90	4.21
DACL	46.50	6.48	49.62	7.39
Pleasant Events Schedule	70.10	18.45	63.76	15.68

* The prenatal data from one woman in this group were lost in the mail and not recovered

Appendix O

Means and standard deviations of the measures completed after one week at home

	Vaginal Delivery N=73		Caesarian Section N=21	
	Mean	SD	Mean	SD
Attitude to Baby	161.22	18.30	150.38	39.12
Areas of Concern	9.38	7.38	7.38	6.18
Self-confidence re: childcare	3.48	.80	3.10	1.30
Ease of adjustment from hospital	3.19	1.05	2.86	1.42
Experience received in Hospital	2.85	1.00	2.62	1.47
Preparation for role of Mothering	3.16	1.09	2.81	1.60
Length of time to understand infant	3.71	1.10	3.43	1.57
Certainty regarding childbirth	3.05	.96	2.90	1.48
Amount of help needed	3.21	.73	2.71	1.15
DACL	48.55	7.41	46.62	12.85

Appendix P

Means and standard deviations for the measures completed after five weeks at home

	Vaginal Delivery N=73		Caesarian Section N=21	
	Mean	SD	Mean	SD
Attitude to Baby	180.56	14.70	174.62	14.05
Areas of Concern	6.64	5.76	6.76	6.39
Beck Depression Index	4.81	3.59	5.43	3.26
DACL	45.95	9.77	49.05	6.87
Pleasant Events Schedule	61.41	20.22	59.43	17.92

Key for Appendix Q

25 Aid when	Help needed at home
23 Know	Immediacy of understanding infant
10 Room	No. of days rooming-in
17 Infant	attitude towards baby
20 Adjust	ease of adjustment from hospital
24 Cert	certainty regarding care of newborn
22 Help	help received from hospital
19 Confi	self confidence regarding child care
21 Exper	experience received in hospital
18 Conc	no. of problems in hospital
7 Sex	Sex of infant
4 Incoh	Income of husband
13 Concern	no. of problems at home
3 Educh	education of husband
1 Age	Age of wife
2 EducW	education of wife
15 V12	energy level in hospital
8 WGT	weight of infant
16 V14	feelings of gladness
14 DACLC	DACL in hospital
9 Feed	bottle feeding
6 Lab	length of labour
12 labdel	attitude towards labour and delivery
11 Attpreg	attitude towards pregnancy
5 Dayspp	number of days in hospital

Appendix Q

Factor Analysis of Data
Factors and factor loading of selected variables N = 93

Variable	Factor 1	2	3	4
25 Aid when	-0.4386	0.2733	-0.0769	0.1358
23 Know	-0.4437	-0.0031	0.0159	-0.0523
10 Room	-0.4644	-0.1918	-0.2123	-0.0581
17 Infant	-0.5935	0.2055	0.1284	0.2353
20 Adjust	-0.6151	0.2215	0.1624	0.0241
24 Cert	-0.6513	0.0740	-0.0900	0.1622
22 Help	-0.6731	-0.2547	0.2708	-0.1815
19 Confi	-0.6968	0.2116	0.0701	0.1124
21 Exper	-0.7191	-0.3158	0.1752	-0.1250
18 Conc	0.1618	-0.2639	-0.1332	0.0641
7 Sex	0.1698	-0.2851	0.2198	0.0473
4 Incoh	-0.0767	-0.3060	-0.1528	-0.0862
13 Concern	0.1403	-0.4177	-0.0408	0.1649
3 Educh	-0.0048	-0.4199	0.1937	-0.1265
1 Age	-0.0907	-0.4907	-0.0790	-0.1560
2 EducW	0.0426	-0.5722	-0.0291	-0.0214
15 V12	0.1099	0.0266	0.5293	0.1327
8 WGT	-0.0869	-0.0530	0.4323	0.0541

16	V14	0.0143	0.1347	0.4125	0.1673
14	DACLC	0.2395	-0.1047	-0.3296	-0.1252
9	Feed	0.2143	0.0369	-0.3671	0.0310
6	Lab	-0.0693	-0.3481	-0.4717	0.3483
12	labdel	-0.0827	-0.0978	0.1675	0.8169
11	Attpreg	-0.0952	0.1702	0.1319	0. 1985
5	Dayspp	-0.0036	-0.2447	-0.2081	-0.3745