

https://dspace.org/

Anxiety, and childbirth with routine epidural anaesthesia

Leader, Dianne Sheila

2013-08-19
http://hdl.handle.net/10539/13040

Downloaded from a DSpace repository. https://dspace.org/

ANXIETY, AND CHILDBIRTH WITH ROUTINE EPIDURAL ANAESTHESIA

Dianne Sheila Leader

In fulfilment of the requirements for the degree of Master of Science at the University of the Witwatersrand, Johannesburg, South Africa, December, 1976.

ACKNOWLEDGEMENTS

Grateful thanks are due to the following, whose assistance is deeply appreciated;

Professor J. Mann, head of the department of psychology at the University of the Witwatersrand, for his supervision and encouragement, invaluable guidance, advice and criticism;

Mr. M. Bloom, for the inspiration, time and practical assistance he provided;

Mr. M. Hurwitz, for his encouragement, practical help, and the hospital experience he made accessible;

Mrs. V. White, for the ideas, motivation and support she gave;

Messrs. H. Kramer, I. Saffro and O. Treisman, for allowing and encouraging their patients to participate;

The doctors' receptionists, who aided in administering the tests;

Drs. Sinton and Bosman, the anaesthetists who helped with the technical information and provided practical demonstrations of epidural block;

The Human Sciences Research Council, Pretoria, South Africa, who made available the IPAT anxiety scale and supplementary information;

The helpful librarians of the University of the Witwatersrand, the National Institute for Personnel Research, the Rand Afrikaans University and the University of South Africa;

Dr. and Mrs. I. Berelowitz, Mr. and Mrs. L. Leader and Michael Leader, who gave support and helped in numerous practical ways;

Mrs. J. Warwick, who typed the manuscript;

The many other people who helped with statistical and methodological problems, provided relevant literature and aided in preparing the manuscript.

TABLE OF CONTENTS

Chapter 1: Introduction 1

1.1 Introduction to the study 1

1.2 Definition of terms 2

1.21 Anxiety 2

1.22 Epidural anaesthesia 3

1.23 Childbirth with epidural anaesthesia 3

Chapter 2: The Psychology of Pregnancy 4

2.1 Introduction 4

2.11 A psychology of pregnancy 4

2.12 Changes in pregnancy 5

2.2 The Environment of the Pregnant Woman 6

2.21 Changes in the micro-environment 7

2.22 The intermediate environment 10

2.23 The macro-environment 12

2.24 Interdependence of environments 13

2.3 Systems View of the Pregnant Woman 14

2.31 Specific universal factors 15

2.32 Unique factors 17

2.4 A General View 18

2.41 Reorganization of the system 18

2.42 Vulnerability to crisis 19

2.43 Testing ground of mental health 19

2.44 Summary 20

2.5 Implications for the Present Study 21

2.51 Generality 21

2.52 Anxiety 22

Chapter 3: Anxiety 24

3.1 Introduction 24

3.2 Physiological Aspects 24

3.21 Overstimulation 24

3.22 Arousal 25

3.23 Summary 26

3.3 Psychological Threat 26

3.31 Freudian theory 26

3.32 Other theories 27

3.33 The threat to the adequacy of the system 28

3.4 Conditions for Anxiety 28

3.41 Uncertainty 28

3.42 Response unavailability 29

3.43 Summary 30

3.5 A General Overview of Anxiety Theory 30

3.6 Relevance to the Present Study 31

3.61 Theoretical view of anxiety in pregnancy 31

3.62 Research 33

3.63 Routine epidural anaesthesia 36

3.64 Summary 38

Chapter 4: Epidural Anaesthesia in Obstetrics 40

4.1 Introduction 40

4.2 Pain Relief in Labour 41

4.21 Psychological methods 41

4.22 Inhalation techniques 41

4.23 Oral and intravenous medication 41

4.24 Block techniques 42

4.3 Epidural Block (or Anaesthesia) 42

4.31 Site 42

4.32 Procedure for routine epidural block 43

4.4 Evaluation of Epidural Block 44

4.41 Pain relief 44

4.42 Effect on the mother 46

4.43 Effect on the foetus 48

4.5 Implications for the Present Study 50

4.6 Glossary 51

Chapter 5: Hypotheses, Design and Method 53

5.1 Aim 53

5.2 Hypotheses 53

5.21 Rationale 53

5.22 Hypotheses 54

5.3 Subjects 55

5.31 Control 55

5.32 Summary of subjects 58

5.4 Procedure and Subject Selection 59

5.5 Measurement of Variables 60

5.51 Anxiety Scale 60

5.511 Description 60

5.512 Development 61

5.513 Validity and reliability 62

5.52 Choice of the IPAT anxiety scale 63

5.521 Practical considerations 63

5.522 Theoretical considerations 66

5.53 Questionnaire 69

5.531 Aims of the questionnaire 69

5.532 Description of the questionnaire 69

5.533 Development of the questionnaire 71

5.534 Scoring 72

Chapter 6: Results 74

6.1 Introduction 74

6.11 Data obtained 74

6.12 Control of variables 74

6.2 Analysis of Anxiety Scores 81

6.21 Total IPAT anxiety scores 81

6.22 IPAT part-scores 83

6.3 Analysis of the Questionnaire 86

6.31 Collapsing of data 86

6.32 Criteria for Statistical Analysis 88

6.33 Item by item analysis of the questionnaire 90

6.34 Summary of results 99

6.35 Additional analysis of questionnaire items 101

Chapter 7: Discussion 104

7.1 Introduction 104

7.2 Acceptability of Findings 104

7.21 Subjects and procedure 104

7.22 Control of variables 105

7.23 Assumptions 106

7.24 Experimenter Bias 107

7.25 Summary 108

7.3 Interpretation of Main Results 108

7.31 Introduction 108

7.32 Main results 110

7.33 Expansion of theory 111

7.34 Difference in needs 113

7.35 Maslow's theory of needs 115

7.36 Maslow's theory and data from the present study 117

7.37 Needs in accepting or declining routine epidural anaesthesia 120

7.38 Integration with the systems view of the psychology of pregnancy 122

7.39 Cognitive change 123

7.4 Integration of Theory into an Interpretation of the Main Results 126

7.5 Interpretation of Questionnaire Data 128

7.51 Parity distributions 128

7.52 Attendance at antenatal classes 129

7.53 Prior experience of epidural anaesthesia 132

7.54 Section 2 of the questionnaire 132

7.541 Preliminary analysis: parity differences 132

7.542 Group differences 134

7.55 Section 3 of the questionnaire 141

7.56 Section 4 of the questionnaire 146

7.6 Group 3: Undecided Subjects 147

7.7 Summary of Discussion 149

Chapter 8: Conclusions, Implications and Directions for Further Research 154

8.1 Conclusions 154

8.11 Main Results 154

8.12 Subsidiary data 154

8.2 General Practical Implications 155

8.21 Offering routine epidural block 155

8.22 A team approach to antenatal care 157

8.23 Community mental health 159

8.24 Practical aspects of an antenatal team approach 161

8.25 Summary 162

8.3 Implications for Further Research 162

8.31 Methodological issues and relevant variables 162

8.32 Summary 164

8.4 Further Areas of Investigation 165

8.41 Maturational Crises 165

8.42 Change 166

8.43 Anxiety 167

8.44 Self-actualization 167

8.45 Psychosomatic medicine 168

8.46 Decision making 168

8.47 Summary 169

Chapter 9: Abstract 170

List of References 171

Appendix 1: Item by item analysis of the questionnaire for primi- and multiparae 191

Appendix 2: Questionnaire: long form for groups 1, 2, and 3 200

Appendix 3: Questionnaire: short form for group 4 212

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION TO THE STUDY

Childbirth is a physical process which is vulnerable to psychological influence. Psychosomatic aspects of pregnancy and labour have been studied by a number of authors, and the physical events of pregnancy and confinement have been related to a number of psychological variables. Nausea and vomiting during pregnancy, spontaneous abortion, premature delivery, abnormalities of the infant and complications during labour are some conditions in which psychogenic factors are suggested. (Blau et al., 1963; Mann, 1957; Javert, 1957; Stewart and Scott, 1953; Baxter, 1974; Beck, 1972; Ferreira, 1965; Ferreira, 1960).

The most widely studied psychological variable has been maternal anxiety level during pregnancy. Anxiety has been measured directly, indirectly, and projectively, by Davids et al. (1961), McDonald et al. (1963), Grimm (1961), and Zemlick and Watson (1953), and related to labour complications, abnormalities of the infant, and postpartum maternal adjustment. The consistency of results obtained by various researchers and methods indicates the importance of maternal anxiety level during pregnancy, and the desirability of reducing it.

Major sources of anxiety during pregnancy are external conditions (mainly poverty), fear of childbirth (including condition of the infant), and lack of emotional support during pregnancy (Hamilton, 1955; Assael et al., 1972; Robin, 1962).

A current controversy in obstetric practice is the use of routine induction of labour under epidural anaesthesia. Labour is induced soon before labour would begin spontaneously, and epidural anaesthesia is administered simultaneously. This is a local anaesthetic blocking sensory input from the pelvic area. The woman feels no pain from the waist down, although she is fully awake during labour and can cooperate fully. The obstetrician offering routine epidural anaesthesia does so during pregnancy, and the woman may accept the offer at any time during her pregnancy. A painless labour is thus virtually guaranteed.

The major psychological argument put forward by the proponents of this procedure is that maternal anxiety level is substantially reduced during pregnancy, since there is no need for the woman to fear pain or loss of self-control during childbirth.

The aim of the present study is to subject this argument to empirical test, by investigating the general anxiety level during pregnancy of four groups of women. It is planned to administer the IPAT anxiety scale, late in pregnancy, to women who have been offered routine epidural anaesthesia (whether they have accepted or rejected the offer, or are undecided at the time of testing), and women who have not had such an offer. A supplementary questionnaire will be administered simultaneously.

1.2 DEFINITION OF TERMS

1.21 Anxiety:

The subject's general level of anxiety, as measured by the IPAT anxiety scale, on one occasion during the final three weeks of pregnancy.

1.22 Epidural Anaesthesia:

Local anaesthesia of the pelvic area, obtained via a tube inserted into the epidural space in the lower spine.

1.23 Childbirth With Epidural Anaesthesia:

Childbirth undergone while the mother is anaesthetized as above.

CHAPTER TWO: THE PSYCHOLOGY OF PREGNANCY

2.1 INTRODUCTION

The present study deals with a variable (the offer of routine epidural anaesthesia in labour) likely to be important to pregnant women, and with the emotional and attitudinal responses of such women. It is necessary to have some background picture of the psychology of pregnancy in order to assess the possible importance of the variable, and the observed responses of the pregnant women. Some general frame of reference may be obtained by examining empirical data regarding pregnant women as well as theoretical formulations offered by various authors.

2.11 A Psychology of Pregnancy

There is some controversy over the issue of whether or not there is a 'psychology of pregnancy'. Various authors have approached the question in different ways, stressing the psychosomatic, intra-psychic, interpersonal, cultural or psycho-social aspects of pregnancy. There is clear agreement that women react to pregnancy in a variety of ways, differing markedly in their physiological, cognitive, emotional and behavioural responses.

This might lead to the conclusion that no generalizations are possible, and pregnancy should be viewed in terms of its unique meaning to each individual. While the idiosyncratic significance of pregnancy to each woman, and her unique responses to it should be borne in mind, there are indications that some general views on pregnancy (e.g., as a period of crisis) may be justified, and may yield useful insights in

specific cases. Certain authors propose specific universal factors in pregnancy (e.g., Rheingold's "mutilation complex" -- see later) and provide enough supportive evidence to compel serious consideration of their theses.

Thus the picture emerges that each pregnancy is a unique experience for each woman, which might usefully be analysed in terms of some general conceptions and may also involve some specific universal factor or factors.

2.12 Changes in Pregnancy

To begin, there are clear indications that pregnant women differ from non-pregnant women on measured psychological variables.

Hooke and Marks (1962) obtained MMPI data from a consecutive sample of twenty-four women in their last month of pregnancy. Significant differences between the sample and the normative group were found on ten of the seventeen scales used.

Chapple and Furneaux (1964) report alterations in neuroticism and introversion/extraversion measures, and their relationship, during pregnancy.

Meares et al. (1972) report a study involving two hundred and five pregnant women, whose neuroticism and anxiety levels were found to be significantly higher than those of a matched control group of postpartum mothers. Davids et al. (1961) and Levy and McGee (1975), also found women to be more anxious during pregnancy than postpartum. These findings support earlier works (Hall and Mohr, 1933; Hirst and Strousse, 1938) proposing increased anxiety in pregnancy.

McConnell and Daston (1961) found significant body-image changes in pregnancy using the Rorschach test in a test/retest design. Authors presenting therapeutic reports on individual women also comment on the far-reaching psychological changes observed during pregnancy, in line with the empirical work (e.g., Squier and Dunbar, 1946; Caplan, 1960, Caplan, 1961).

Thus it is apparent that changes are found during pregnancy, presumably in response to real or perceived changes in the woman's situation. Williams et al. (1975), in studying pregnancy and life change, reported that their subjects could be regarded as experiencing major life crisis during pregnancy. One might usefully examine the changed conditions in the pregnant woman's situation to pinpoint and understand the concomitant psychological changes observed. Hodge and Johnson's (1970) conceptual picture of the organization may be adapted for the pregnant woman.

2.2 THE ENVIRONMENT OF THE PREGNANT WOMAN

The pregnant woman is portrayed as existing in a micro-environment, an intermediate environment and a macro-environment.

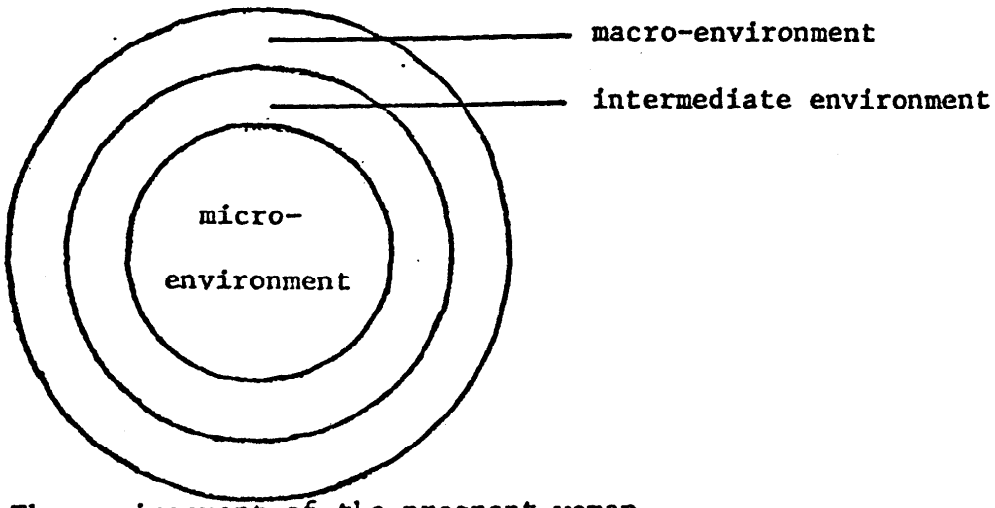

Figure 2.1 The environment of the pregnant woman

The macro-environment is the cultural, political, economic and social setting in which she lives, i.e., the outside world. The intermediate environment represents her intimate world - her home, relationships with her family and friends, etc. The micro-environment consists of her body and all the physiological and biochemical processes therein, the internal physical world.

2.21 Changes in the Micro-environment

Pregnancy is first apparent in the physical changes in the woman's body, involving massive and rapid changes in hormonal output. There is ample literature supporting the view that emotional changes accompany hormonal changes in women, e.g., the condition of premenstrual tension.

Benedek (1952) reports a detailed analysis (supported by an empirical study) of the emotional changes correlated with hormonal changes in the woman's monthly cycle. She regards the psychology of pregnancy as easily understandable in the light of the psychodynamic processes which accompany the progestin phase of the cycle. The enhanced metabolic processes which maintain pregnancy produce an increase of vital energies, resulting in increased primary narcissism. The woman becomes involved in her body, withdrawing from the world. This may appear regressive on the ego level, but represents a growth of the integrative span of the personality on the biological level, since she is integrating her foetus.

Benedek's pregnant woman is in a continued passive and introverted state, with increased primary narcissism and receptive tendencies

originating in increased libidinal energy due to physiological changes. Others (e.g., Caplan, 1960, 1961) partly support this picture.

Benedek (1952, 1955) regards environmental factors as the cause of other emotional states in pregnant women, but there is evidence implicating biochemical processes.

Firstly, evidence of emotional imbalance in other periods of great hormonal change (Rheingold, 1964), such as puberty and menopause, imply that emotional imbalance may be involved with hormonal change in pregnancy as well.

Emotional lability is an oft-mentioned feature of pregnancy (Caplan, 1961; Robin, 1962). This ties in with the so-called 'jukebox' theory of emotion (James, 1892; Lange, 1888) which is widely accepted. This theory maintains that emotion is physiologically based; certain physiological and chemical changes occur in the body which are then interpreted cognitively in the light of situational factors and past experiences. Thus the pregnant woman is aware of hormonal changes in her body, and interprets them as emotional changes depending on her situation and past emotional experiences.

Caplan (1961) presents an interesting addition to the evidence on the role of biochemical changes in the psychology of pregnancy. Both he and Bibring (1959) give evidence that the fantasy life of pregnant women is similar to that of schizophrenics. 'Blind' analyses of the projective or fantasy material of pregnant women led to a diagnosis of schizophrenia or borderline schizophrenia in many cases.

According to Caplan, the Medical School of New Orleans have isolated certain biochemical products from the blood and urine of schizophrenic patients which do not occur in normal people, and which, when injected into normal volunteers, produce schizophrenia-like psychotic symptoms. One of these chemical products has also been isolated in the urine of pregnant women.

Finally, physiological changes (e.g., nausea) and the growth of the foetus may cause the pregnant woman increasing discomfort, and her resultant irritability is understandable.

To sum up, there is compelling evidence that changes in the micro-environment of the pregnant woman may account for some of the altered psychological states observed in pregnancy.

Benedek's psychoanalytically-based theory gives some insight into the passive and introverted state of the pregnant woman, which is maintained by libidinal energy arising from metabolic changes.

The gravida's emotional lability is explicable in terms of the jukebox theory of emotions, noting the continual hormonal and physical changes being experienced during pregnancy. The schizophrenic-like fantasy life of the pregnant woman may be biochemically based, which would explain the puzzling situation reported by Caplan (1961) and Bibring (1959) wherein the pregnant woman's projective material leads to a diagnosis of psychosis, but there is no evidence of impaired reality testing as there is in schizophrenia.

2.22 The Intermediate Environment

The above discussion of changes in the micro-environment of the pregnant woman yields a picture of an emotionally labile woman, becoming more introverted and withdrawn from her environment and involved in a possibly disturbing fantasy life. Other authors support aspects of this description (e.g., Rheingold, 1964; Baker, 1967) whether or not they subscribe to physiologically based theories.

Following on from this probably physiologically-based emotional change, the pregnant woman makes new demands on her intermediate environment. Specially, she demands tolerance and understanding of her emotional lability from those intimately involved with her, while she is less able to provide them with empathy and emotional support due to her increasing passivity and introversion. At the same time, a woman's pregnancy is likely to involve difficulties for her intimates as well; new responsibilities for the father, a new threat for the children. They in turn need emotional support from her as wife or mother. Thus intimate emotional relationships become more demanding for the pregnant woman and her family.

At the same time, the impending birth alters the intermediate environment. The mother-to-be must prepare accommodation and provide necessities for the baby - this may involve moving to a new home and financial outlay. She may have to leave her job or retire from other involvements, possibly resulting in reduced income, more limited contact with people other than intimates, or interruption of a career. These changes and the need to cope with them in her emotionally altered state may cause the pregnant woman to feel resentful and irritable. If the baby is unplanned, this is even more likely.

On the other hand, pregnancy involves favourable change in the intermediate environment as well. The pregnant woman is often given special consideration by others and pampered by her intimates.

In favourable circumstances her pregnancy represents fulfilment of a desire to bear children; a fulfilment shared with her husband and eagerly anticipated by the future grandparents.

Pregnancy may involve increased status in her circle of friends, and may give the gravida a sense of involvement in life and creation. Frankl (1963) emphasized the importance of finding meaning in one's life, and pregnancy may provide a woman's life with such meaning.

These intermediate environmental changes do have a significant effect on the emotional state of the pregnant woman, as indicated by the research of the Gordons (1959). They were able to predict emotional reaction to pregnancy from social history data (e.g., suburban migration, religious intermarriage) at a high level of statistical significance.

Thus the picture emerges that the pregnant woman becomes more dependent on her intermediate environment, due to her reduced physical, emotional, and economic sufficiency, and her physiologically-based and circumstantially-imposed withdrawal from the external world. Pregnancy involves both positive and negative changes in the intermediate environment, which affect the gravida's emotional state, leading to a unique emotional reaction to pregnancy, which probably involves ambivalent feelings. She now depends largely on her intermediate environment to fulfil her urgent and sometimes contradictory needs as a person and as a pregnant woman, and this environment may be more or less adequate to the task.

One may then conclude that idiosyncratic response to pregnancy is largely a function of the unique intermediate environmental changes brought about by pregnancy and the adequacy of the intermediate environment in fulfilling the gravida's needs.

More generally, ambivalence and anxiety are oft-mentioned features of pregnancy (Rheingold, 1964; Deutch, 1945; Hollender and McGehee, 1974; Stráker, 1954), which are explicable in terms of the contradictory feelings evoked by intermediate environmental changes, the number and importance of these changes, and the increased dependency of the pregnant woman on this changing environment for need satisfaction.

2.23 The Macro-environment

While the intermediate environment assumes greater and changing importance for the pregnant woman, she is subject to the fairly unchanging influence of the macro-environment. For a primigravida, this is a new influence on her life, for a multigravida it is one of the stable influences apparent during pregnancy.

Macro-environmental influences on the pregnant woman comprise the cultural stereotypes relating to pregnancy, labour and motherhood held up by her society.

The prevailing cultural stereotype of 'pregnancy behaviour' is likely to affect the behaviour of the gravida, as indicated by Mead (1949). She states that where morning sickness is culturally stylized as appropriate for any period of pregnancy or order of pregnancy (such as first pregnancy only), a large majority of women will show this behaviour, where it is not, only a few will (pg. 220).

The stereotypes of childbirth and infant caring affect the pregnant woman's expectations of her immediate future. Much anxiety is commonly reported by pregnant women concerning labour and infant caring (Hamilton, 1955; Klein et al., 1950; Robin, 1962), so the woman's expectations concerning these events may well influence her emotional health during pregnancy. These stereotypes are likely to be reinforced by personal experience for multigravidae, since many authors note that, in general, women of different cultures experience childbirth differently, although there is considerable individual variation within any culture (Rheingold, 1964).

Societal pressure is also exerted on the pregnant woman to 'cope well' with childbirth and childrearing in terms of prevailing criteria; she is expected to assume the culturally determined roles of gravida, parturient and mother. For a primigravida these roles may be very different in their demands from her previous familiar roles of wife, socialite, career woman, student, etc. in which she has achieved some competence.

2.24 Interdependence of Environments

Thus, there are real and perceived changes to which the pregnant woman reacts; changes in her micro-intermediate and macro-environments. One must bear in mind the mutual influence these environments have on one another, rather than consider them as separate entities in fact.

The physical changes of pregnancy lead to new behaviours of the woman which affect her intimate world (as discussed). However, physiological factors are also influenced by intermediate environmental

factors; nausea and vomiting during pregnancy, spontaneous abortion and toxaemia of pregnancy have all been associated with psychological factors (Blau et al., 1963), many of them dependent on the intermediate environment (e.g., anxiety due to unwanted pregnancy, etc.). Macro-environmental influences are represented to the pregnant woman via the intermediate environment (e.g., family and friends uphold the cultural stereotypes), so the macro- and intermediate environments exert a mutual influence.

2.3 SYSTEMS VIEW OF THE PREGNANT WOMAN

It seems most economical to understand the complexities of the psychology of pregnancy by means of the concept of a system. The woman and her world (micro - intermediate and macro-environments) comprise the system, with all parts interdependent. Change in one part of the system provokes reactions in other parts, and the system is in a constant state of internal flux. The internal organization of the system is unique for each woman, dependent on her past history and personality structure. In spite of the internal motion and the interdependence of all parts of her system, one may ascribe certain general characteristics to the system itself, e.g., the system adapts quickly or slowly to changes, it is stable or unstable.

Maintaining the concept of a woman and her world as comprising a system, one may describe the psychology of pregnancy in terms of changes in the system. It is still useful to conceive of pregnancy as a unique experience for each woman, which may usefully be analysed in terms of some general conceptions and may also involve some specific universal factors (see page 5).

Since the prepregnancy organization of each system is unique, each pregnancy is unique. This view is supported by Furneaux and Chapple (1964) who regard pregnancy as a nonspecific stress, with the varying responses to it being related to each woman's initial personality.

However, general characteristics of the system change during pregnancy (see below) and specific universal factors are introduced into the system by pregnancy, e.g., the physiological changes of pregnancy.

2.31 Specific Universal Factors

(a) Physiological changes

The biochemical and physiological changes of pregnancy are universal. Pregnancy involves growth of the foetus and hormonal change for all women. This factor introduces the first change in the woman and world system, the effect of which is a tendency to emotional lability and introversion in the pregnant woman. This tendency interacts with the rest of the system, and the extent of a particular woman's introversion or emotional lability depends on this interaction.

(b) Knowledge of pregnancy

Aside from the purely physiological state of pregnancy, a knowledge of her condition is a universal factor activating many of the cognitive and emotional changes in pregnancy. Rheingold (1964) points out that in unrecognized pregnancy (e.g., due to irregular menstrual cycle) women are usually unaffected psychologically, whereas in pseudocyesis (Fried et al., 1951) emotional and psychosomatic symptoms of pregnancy

are found in the absence of conception (e.g., nausea, swelling of breasts, amenorrhea).

(c) Mother-Daughter Relationship

Joseph Rheingold (1964) proposed a startlingly different view of pregnancy, based on his theory of maternal destructiveness. Backing his theory with extensive discussion, reference to empirical work and other authors, and drawing on his clinical experience, he proposed that mothers are driven to destroy their children as well as to nurture them, and that this destructive impulse does not necessarily involve hostility to the child.

Parents are also actively seductive to their children, rather than passively involved in an oedipal situation originating in the child.

The mother's sexual rivalry with her daughter is the prime reason for the 'mutilation complex', a deeply embedded fear in the girl of mutilation of her sexual organs, originating in her mother's destructive desires. The female child feels threatened specifically because she is female like her mother. This fear is acquired at a very early age as the defenceless infant perceives the maternal ambivalence and conflict between destructive and nurturant impulses.

Rheingold regarded the hostility in the mother-daughter relationship, which is the response to the maternal threat, as central to the understanding of pregnancy.

The pregnant woman's hostility to her mother is accompanied by feelings of guilt and/or fear of retaliation. Thus he sees

the fear and anxiety which pervade pregnancy as related to the mutilation complex and the fear of maternal vengeance. He also implicates the 'wish-fear' complex, whereby the desire for motherhood is in conflict with the fear of the consequences (maternal vengeance).

While one may not be inclined to accept Rheingold's theory *in toto*, a number of aspects may indeed be universal or widespread, and are supported by other authors. The pregnant woman's relationship with her mother is mentioned by many authors as central to her adjustment to pregnancy (Deutch, 1945; Haas, 1952; Nilsson *et al.*, 1971). Ambivalence regarding pregnancy is also widely acknowledged, and may be regarded as a specific universal factor in pregnancy (Caplan, 1961; Deutch, 1945). Anxiety and fear are also reported to be common to most pregnant women (see Chapter Four).

2.32 Unique Factors

The intermediate environment of each woman is unique, and the effect of pregnancy on that environment is different in each case.

For example, even if one accepts Rheingold's general views on the effect of the mother-daughter relationship in pregnancy, each such relationship is different in degree of destructive and nurturant aspects. Similarly, pregnancy affects all important intimate relationships in a specific and unique manner, as it impinges on all aspects of the intermediate environment.

Even in studying a relatively well-defined group (pregnant adolescents), Baizerman et al. (1974) report the importance of unique factors.

The idiosyncratic organization of each woman's self and world system before pregnancy is the other major source of idiosyncratic response to pregnancy.

2.4 A GENERAL VIEW

In general, it is clear that many parts of the woman-and-world system are affected when a woman becomes pregnant. Since all parts are interdependent, the entire system is subject to great upheaval. This leads to a threefold general view of the psychology of pregnancy.

2.41 Reorganization of the System

Fundamentally, pregnancy is a period of disturbance and reorganization of the entire woman-and-world system.

This disintegration of the old order and creation of a new order is indicated by a number of authors (Bibring, 1959; Deutch, 1945; Pines, 1972), who note that old and partially-resolved conflicts reappear during pregnancy, e.g., oedipal conflicts with both parents.

Also, pregnant women are particularly amenable to psychotherapy (Destounis, 1962; Tupper and Weil, 1962), with significant material becoming available more easily and quickly than usual (Caplan, 1961).

It is also noted that the behaviour of a pregnant woman may appear regressive (Blitzer, 1964) at some stages, even if the pregnancy experience as a whole is progressive for that woman.

These factors support the view of pregnancy as a period of breaking down and reorganizing of the entire system. Affonso (1971) also supports the view of pregnancy as a maturational crisis in this sense.

2.42 Vulnerability to Crisis

Since the system of the pregnant women is in a state of abnormal flux, any additional crisis or change during pregnancy may tax the stability of the system intolerably. That is to say, the pregnant woman is particularly vulnerable to additional burdens.

Blitzer (1964), Robin (1962), Kiernan (1964), and McDonald (1965) concur with this view of pregnancy as a period of transient ego vulnerability and regressive change. Bibring (1959) and others regard pregnancy as a crisis; however, the present conception of pregnancy rather supports the view of Gerald Caplan (1960, 1961) that pregnancy is a period of vulnerability to crisis.

2.43 Testing Ground of Mental Health

Pregnancy is also a testing ground of mental health, since it taxes the ability of the system to adapt to massive change.

Many studies support this view by indicating that a large proportion of emotional disorders in women are related to childbearing (Assael et al., 1972; Baker, 1967; Brew and Seidenberg, 1950; Jansson, 1964; Mandelbrote and Muro, 1964; Meares et al., 1972; Melges, 1968; McNeil and Kaij, 1973; Ostwald and Regan, 1957; Tetlow, 1955).

If the system is fairly stable and can assimilate change to form

a new equilibrium fairly rapidly, pregnancy is minimally threatening to the mental health of the woman. In fact, a more complex and adaptable system will result, and pregnancy will have been a maturing and fulfilling experience for the woman.

On the other hand, a woman maintaining a fragile system which is rigid and unamenable to change, may be unable to assimilate the stresses and changes of pregnancy into her system. She is likely to regress psychologically, enhancing the rigidity of the system, and expending much psychological energy in maintaining its precarious equilibrium in the face of inescapable change. Mental illness may be precipitated by pregnancy in this way.

2.44 Summary

To sum up, pregnancy is a period of great change for the woman-and-world system, which becomes particularly vulnerable to crisis. It taxes the stability and adaptability of the system by necessitating a fundamental disturbance and reorganization to regain equilibrium.

This may result in a more flexible and stable system, and may be regarded as a progressive and self-actualizing experience for the woman. Alternately, a more rigid system may result, maintaining a fragile equilibrium, or the system may be unable to regain equilibrium, resulting in a regressive experience for the woman or even severe mental disorder. This depends on the prepregnancy system of the woman and the specific changes brought about by this particular pregnancy.

2.5 IMPLICATIONS FOR THE PRESENT STUDY

2.51 Generality

The uniqueness of each individual pregnancy has been adequately accounted for in the preceding discussion; the present study is concerned with discovering generally applicable information on pregnancy.

In attempting to discover generally applicable information the researcher aims to acquire knowledge which is applicable to many, though not all, pregnant women. Such generalities focus on the similarities found among pregnant women, and the conditions frequently encountered during pregnancy. The introversion, emotional lability and heightened anxiety level commonly found among pregnant women (as discussed in this chapter) are examples of such generalities, which are widely applicable but not necessarily true in each case.

Within the proposed systems view of pregnancy, it is apparent that some important factors have more effect on the total system than other factors. For example, whether or not the pregnant woman is married has far-reaching implications during pregnancy; whether or not she can drive a car has fewer implications, and thus has less effect on the total system.

Thus any factor which has much effect on the system can profitably be studied to gain generally applicable information. A major assumption on which the present study rests is that the offer of routine epidural anaesthesia during childbirth is an important factor affecting pregnant women. Empirically this assumption may prove to be unfounded, but there are theoretical grounds (discussed below) for regarding it as tenable, and

thus worthy of empirical test. The design of the present study allows for disconfirmation of the assumption.

2.52 Anxiety

An important factor in the system is one which affects many aspects of the system and/or affects other factors proven to be of importance. Anxiety level, as discussed in Chapter Three, is an important factor during pregnancy, and fear of childbirth an important source of anxiety during pregnancy (Hamilton, 1955; Assael *et al.*, 1972; Robin, 1962).

The offer of routine epidural anaesthesia during childbirth is an offer of painless childbirth, which could reduce anxiety level by eliminating one major source of anxiety during pregnancy. The gravida need fear neither pain nor loss of control during labour, and she can be reassured by the doctor of the safety to herself and her baby of the procedure. For the primigravida the fear of the unknown may be reduced, and the possibly frightening cultural stereotype of labour may be rejected as inapplicable.

The present study is therefore concerned with the effects of the offer of routine epidural anaesthesia on anxiety level during pregnancy, and the proposed view of the psychology of pregnancy provides a framework within which to understand these effects.

In this view, the main effect is to reduce the anxiety-provoking aspects of the macro-environment, by changing the stereotype of labour from painful to painless, and eliminating the pressure to cope well with the pain of childbirth. Since all parts of the system interact, these

direct effects may be reinforced by anxiety-reducing changes in other parts of the system (e.g., the gravida may have fewer psychosomatic complaints, or a less stressful relationship with her husband).

One possible anxiety-increasing effect of the offer may be the need to make a decision; anxiety socres of the group of subjects undecided about the offer should give some indication of the importance of this variable. The expense of the procedure might be another source of anxiety, but it is unlikely to affect subjects in the present study, who are all of relatively high socio-economic status.

CHAPTER THREE: ANXIETY

3.1 INTRODUCTION

Anxiety, the major dependent variable in the present inquiry, has been examined from many different viewpoints. Various theories have been postulated, from which much empirical work has resulted. In an attempt to integrate the hypotheses abounding in this field, certain general features of anxiety theory will be presented, and their relevance to the present study assessed.

An integrated definition of anxiety is developed in this chapter. Anxiety is regarded as an emotional state, experienced as a feeling of apprehension, in which the body is physiologically aroused. It is rooted in the avoidance of sensory overstimulation (primary or basic anxiety) and the fundamental threat that the individual's psychological system will be inadequate to cope with the external world. Anxiety is experienced in situations of uncertainty and response unavailability.

3.2 PHYSIOLOGICAL ASPECTS

3.21 Overstimulation

Primary overstimulation is regarded by Freud (1936, 1959), Pavlov (1941), Mowrer (1939), Miller (1951), and Epstein (1972) as fundamental to anxiety.

Freud (1959) regarded sensory overload as equivalent to what he termed 'primary or basic anxiety'. That is, the organism can withstand

only a limited amount of stimulation (referring particularly to stimulation of the cerebral cortex). Various forms of neurological defence have been developed to provide a barrier against excessive stimulation, but when this barrier is broken 'traumatic neurosis' ensues. The experience of birth, as the initial exposure to overwhelming stimulation, is the prototype from which other kinds of anxiety are derived (Rank, 1929).

Pavlov (1927, 1928, 1941) agreed that the cerebral cortex is susceptible to damage from intense stimulation. He produced excessive excitation, which he termed experimental neurosis, in dogs by intense primary stimulation using loud noises and shocks.

Neobehaviourists such as Mowrer (1939) and Miller (1951) proposed that fear or anxiety are conditioned responses to pain, which may be regarded as an example of overstimulation. Anxiety is elicited by stimuli which were present when the organism experienced pain.

Thus according to Freud and Pavlov, one fundamental form of anxiety results from sensory overload, and other types of anxiety are derived. For the neobehaviourists anxiety is derived from the experience of pain, which is an example of overstimulation.

3.22 Arousal

The physiological component of anxiety is widely recognised, and all theorists acknowledge the presence of physiological arousal in the anxious state.

For example, Lidell (1964) regarded anxiety as a prolongment of the 'vigilance response', an adaptive state of arousal in response to

changes in stimulation, which leaves the organism ready for 'fight or flight'. Spielberger (1972) conceived of anxiety as an emotional state, with the components of physiological arousal and socially-determined cognitions common to all emotional states, as described by Schachter (1964). Epstein (1972) defined anxiety as 'a state of undirected arousal following the perception of a threat'.

3.23 Summary

To sum up, physiological overstimulation is regarded by some theorists as resulting in one type of anxiety, and by others as a condition from which anxiety is derived. Most writers concur that physiological arousal is an integral component of anxiety.

Anxiety is usually regarded as arousal in a situation (discussed below) of uncertainty and response unavailability, and is thus not synonymous with arousal. It is also differentiated from fear by the ambiguity of the situation (particularly where the source of threat is uncertain) and the inability to respond with appropriate direct action.

3.3 PSYCHOLOGICAL THREAT

3.31 Freudian Theory

Freud (1936) described the fear of abandonment as deriving from the excessive stimulation the child is likely to experience when the mother is not available to take care of him, which extends to the fear of loss of love. This further extends to the fear of his own unacceptable id impulses which are likely to elicit disapproval, and thus to moral anxiety due to the demands of the superego. As these internal threats

are vague and disturbing, their origin is repressed leading to anxiety rather than fear. Freudian anxiety is thus engendered by the demands of the id and superego which threaten to overwhelm the ego and disrupt the psychological organization of the individual. Further, signal anxiety develops, where the symptoms of anxiety act as a signal for the defensive process of repression to begin.

3.32 Other Theories

Other theorists also discuss anxiety as the threat of a breakdown of the individual's psychological system, in cognitive or existential terms.

Maslow (1968) regarded anything that blocks self-actualization (that is, prevents the system from progressing) as stimulating anxiety. Anxiety has been described by Rogers (1951) as a threat to the self-concept, and by May (1950) as a threat to the existence of the personality. Goldstein (1939), in discussing anxiety as dread of the 'catastrophic reaction' (total disorganization and disorientation), and McReynolds (1960), in equating anxiety with unassimilated percepts, reinforce the idea that anxiety is a response to the threat that the individual's system will be inadequate to organize, predict, and respond appropriately to the outside world.

Mandler's (1972) theory of anxiety as helplessness, and Lazarus and Averill's (1972) discussion of anxiety as involving a threat to ideas, concepts and values to which the person is heavily committed, all point to the same conclusion, *viz.* that anxiety involves a threat to the adequacy of the person's psychological system.

3.33 The Threat to the Adequacy of the System

The threat to the adequacy of the system may be seen as being derived from basic anxiety, in that an insufficient psychological system, which fails to organize, predict and respond appropriately to the outside world, leaves the individual vulnerable to intense primary stimulation.

This generalized view of anxiety as a response to the threat that one's psychological system will not be able to cope with the environment, allows examination of the type of situation likely to elicit such a response. The major characteristics of such anxiety-producing situations are uncertainty and response unavailability.

3.4 CONDITIONS FOR ANXIETY

3.41 Uncertainty

Uncertainty appears to be a key factor in the literature regarding anxiety.

Cattell (1966) proposed that 'anxiety is an experience sui generis, which is generated directly by the experience of motivational uncertainty ...' (pg. 50).

Pavlov (1927, 1928, 1941) produced experimental neuroses in his dogs by requiring difficult discriminations, and by producing a conflict between excitatory and inhibitory tendencies; that is, by presenting an ambiguous situation.

Lazarus and Averill (1972) regard an uncertain 'primary appraisal' as leading to anxiety; that is, the subject is cognitively unable to

appraise the threat because it is not clearly defined or it relates to the future.

Since the function of the psychological system is to organize the world in accordance with reality, uncertainty or ambiguity pose a threat. A perception cannot be integrated into the system until it is defined. Anxiety results from this threat since the system cannot even begin its process of organizing, predicting and responding appropriately. Similarly, if the threat is defined but its occurrence is unpredictable, the system is prevented from completing its process. Experiments by Epstein (1972), Epstein and Clarke (1970), and Epstein and Roupenian (1970) demonstrated that anxiety results under both the undefined and the unpredictable conditions.

3.42 Response Unavailability

The final stage of the process is responding appropriately. Inability to do so results in anxiety, as expounded by Epstein (1972), Mandler (1972) and Lazarus and Averill (1972). This has been empirically confirmed by Pavlov (1941), who produced experimental neurosis in his dogs by delaying the conditioned stimuli for long periods, and by the neobehaviourists (Mowrer, 1939, 1950; Miller, 1951) who prevented their subjects from performing the learned avoidance response.

It is apparent that expectancies and anticipation are involved at this stage, and these have been discussed by a number of theorists (Lazarus and Averill, 1972; Epstein, 1972; Epstein and Clarke, 1970). Responding appropriately to an actual or anticipated threatening situation means doing something that is expected to reduce or eliminate

the threat. One may integrate the concepts of anticipation and expectation into that of response unavailability in this way, since it is the inability to respond in a way that is perceived as appropriate, for whatever reason, that presents the threat to the psychological system.

3.43 Summary

It is useful to summarize in terms of Mandler and Watson's (1966) theory that the interruption of a behavioural sequence results in anxiety. Interruption of the process of organizing, predicting and responding appropriately to the world threatens the psychological system of the individual and results in anxiety.

3.5 A GENERAL OVERVIEW OF ANXIETY THEORY

The general picture emerges that anxiety has physiological and psychological components (Barrat, 1972; Board et al., 1956) and may be regarded as an emotional state (Schachter, 1964, 1966).

Overstimulation, particularly of the cerebral cortex, leads to basic anxiety. In protecting itself from overstimulation, the organism develops other forms of anxiety. This process is explained in various ways by psychoanalysts, cognitive theorists, existentialists and behaviourists, with general agreement that learning and generalization are involved in the process.

Fundamental to anxiety is the threat that the individual's psychological system is inadequate to organize, predict and respond appropriately to the environment.

Change in stimulation results in physiological arousal which prepares the organism to respond adaptively. In an uncertain or ambiguous situation, or if the organism is unable for any other reason to respond appropriately, the prolonged physiological arousal and the perceived threat to the psychological system result in anxiety.

3.6 RELEVANCE TO THE PRESENT STUDY

3.61 Theoretical View of Anxiety in Pregnancy

The above general view of anxiety, when applied to the picture of the pregnant woman presented in Chapter Two, leads to a prediction of increased anxiety level during pregnancy.

Theoretically, the experience of labour is clearly connected to basic anxiety. That is, childbirth involves extraordinary sensory stimulation for the mother, and the threat of physiological overloading. In addition, the mother's imminent involvement in childbirth is very likely to activate her own repressed primary anxiety, since, in the psychoanalytic view, one's own birth is the archetypal experience of anxiety.

In terms of our definition, general anxiety is rooted in the avoidance of basic anxiety. Labour involves a double threat of primary anxiety, from sensory overstimulation and from the activation of repressed basic anxiety. Thus one would predict an increased anxiety level when childbirth is imminent.

The other major element of the definition of anxiety, 'the fundamental threat that the individual's psychological system will be inadequate to

cope with the external world' is apparent during pregnancy. As described in Chapter Two, the system of the pregnant woman is undergoing a fundamental disturbance and reorganization, and is particularly vulnerable to crisis. In other words, the woman is particularly sensitive to any threat to the psychological system and hence more prone to anxiety, while her situation involves many of the conditions for anxiety.

These conditions are, in general, uncertainty and response unavailability. In behaviourist terms, labour is anticipated as a painful experience, and the woman in late pregnancy is in the classical avoidance-conditioning situation over an extended time-period, unable to make any appropriate response to avoid the painful stimulation, which may begin at any time. In addition, the intensity of the experience is unpredictable, and the threat that she may not be able to cope with the labour (or motherhood) is present. Her situation includes the threat of Goldstein's (1939) catastrophic reaction, a threat to her self-concept (Rogers, 1951) of dignity during labour, and certainly helplessness (Mandler, 1972) is imminent.

Thus many of the conditions for anxiety are present during late pregnancy. Anxiety theorists distinguish between anxiety as a state and as a trait. State anxiety refers to the anxiety experienced in a particular situation at a particular moment. Trait anxiety refers to the particular individual's susceptibility to state anxiety, that is, how prone the person is to become anxious in different situations.

In predicting an increased level of anxiety during pregnancy, an increase in trait anxiety is implied. One predicts that the woman is more prone to become anxious in a variety of situations during

pregnancy, largely due to the vulnerability of her psychological system. She interprets various situations as threatening the integrity of her system. Houston et al. (1972) have concluded that beliefs that the environment is generally dangerous and threatening to self-esteem are significantly related to trait anxiety. Thus in finding many situations threatening in this way, the pregnant woman is likely to reflect a changed trait anxiety level. In thinking about or anticipating labour, or when it begins, the conditions of uncertainty, response unavailability and the threat of basic anxiety become operative, and an increased state of anxiety is likely.

A study by Gorsuch (1969) indicates that measurement of trait anxiety is relatively constant over a time period, but that changes in trait anxiety are preceded by recent changes in state anxiety. This is consistent with the view that measuring trait anxiety in pregnant women reflects their vulnerability to state anxiety over the recent period of pregnancy.

In the present study using the IPAT anxiety scale, the woman's susceptibility to become anxious in the testing situation is included in the assessment of trait anxiety, as the test largely measures trait anxiety, but is susceptible to state anxiety (see page 67).

3.62 Research

As predicted theoretically, an increased level of anxiety during pregnancy has been reported in the experimental literature by Davids et al. (1961), Meares et al. (1972), Levy and McGee (1975), and McDonald and Christakos (1963). Grimm (1961) reported greatly increased

'tension'. The general finding has been that an increased level of anxiety is particularly noted in late pregnancy, as childbirth becomes imminent.

Various psychogenic factors have been implicated in reproductive disorders, indicating the vulnerability of this area of functioning to psychosomatic influence.

Pseudocyesis, hyperemesis gravidum (excessive nausea and vomiting during pregnancy), habitual abortion, labour and delivery difficulties, prematurity and toxaemia of pregnancy have all been found to have psychogenic components (Guze et al., 1960; Fried et al., 1951; Rosen, 1955; Chertok et al., 1963; Harvey and Sherfy, 1954; Weil and Tupper, 1960; Mann, 1956; Grimm, 1967; Klein et al., 1950; McDonald et al., 1963; Kapp et al., 1963; Watson, 1959; Blau et al., 1963; Ringrose, 1961; Salerno, 1958).

Anxiety and stress factors are the most significant in this area, and anxiety level during pregnancy has been investigated by a number of researchers, and has been found to be related to medical and psychological complications during pregnancy and childbirth, abnormalities of the infant and postpartum maternal adjustment.

McDonald and Christakos (1963) compared women who had experienced complications during pregnancy and childbirth with women whose pregnancies, deliveries and infants were normal. The abnormal group had a significantly higher level of anxiety when tested during pregnancy (before classification) than the normal group. McDonald and Parham (1964) replicated these results with a different sample.

Similar findings were reported by Davids et al. (1961) using a test-retest design, and these were replicated using a different sample (1962).

Grimm (1961) reported a higher degree of psychological 'tension' during pregnancy in subjects who had an excessive weight gain, and in multiparae who subsequently had a prolonged second stage of labour. Zemlick and Watson (1953) found anxiety level during pregnancy to be a good predictor of the woman's adjustment to pregnancy and delivery.

Thus a large number of subjects were tested by different researchers using direct, indirect and projective measures of anxiety, and their findings all support the view that anxiety level during pregnancy is related to paranatal complications. The above studies were all prospective, in that measurement of anxiety level preceded classification of subjects into normal and abnormal groups.

Early retrospective studies by Stott (1957, 1958) associated illness or stress during pregnancy with early ill health, mental retardation and congenital malformation of the child. This supports the conclusion of Turner (1956) who found that mothers who had been under undue stress during pregnancy tended to have more 'difficult' infants. Similar findings have also been reported by Lilienfeld and Parkhurst (1951) and Lilienfeld and Pasamick (1955).

More recent work by Lubin et al. (1975) substantiates the relationship between anxiety level during pregnancy and somatic symptoms.

The finding that high levels of anxiety during pregnancy are associated with paranatal complications is understandable, since anxiety

involves both physiological and psychological components.

Anxiety involves biochemical changes in epinephrine-norepinephrine balance and adrenocortical and thyroid functions (Swartz et al., 1963; Wingett and Kapp, 1972; Board et al., 1956). These biochemical changes are transmitted to the foetus to some extent via the circulatory system, thus it is likely that chronic anxiety in the mother may affect the development and functioning of the foetus (Levi, 1965; Stone et al., 1960; Fishman et al., 1962).

Biochemical changes also affect uterine function (Fessel, 1962), and the high level of anxiety during labour of the woman who is particularly prone to anxiety reduces the efficiency of uterine action (Kelly, 1962), leading to prolonged labour or other complications.

In summary, pregnancy and childbirth are vulnerable to psychosomatic complications. Anxiety, particularly, is implicated in paranatal medical and psychological malfunctioning, probably due to the interrelationship of the physiological and psychological components of anxiety.

Thus any factor which reduces anxiety level during pregnancy lessens the risk of paranatal complications. In addition to easing the emotional state of the pregnant woman, any factor which lessens the threat to the woman's system would help her to reorganize it adaptively, and thus contribute to her mental health during pregnancy.

3.63 Routine Epidural Anaesthesia

Major sources of anxiety reported are fear of childbirth, lack of emotional support during pregnancy and external conditions such as

poverty (Hamilton, 1955; Assael et al., 1972; Robin, 1962).

Proponents of routine epidural block focus on the fear of childbirth, and propose that this major source of anxiety may be alleviated by routine use of the procedure. The present study attempts to control for the other major sources of anxiety as far as possible. Pleshette et al. (1956) reported that about 60% of their sample of pregnant women reported genuine fear of pain, but almost all their subjects wanted pain relief. However, the great majority of those wanting pain relief still wanted to remain conscious. Epidural block provides an effective means of pain relief while the woman remains fully conscious.

Theoretically, routine epidural anaesthesia alleviates a number of the anxiety-producing features discussed in this chapter.

The fundamental source of primary anxiety, physiological overloading, is eliminated. The psychological threat to the adequacy of the woman's system is reduced, since she is more likely to be able to cope with painless childbirth, and is less likely to anticipate Goldstein's (1939) catastrophic reaction or any major alteration in her self-image. Since the woman undergoing labour with epidural block is fully awake and able to cooperate with the doctor, she is no longer helpless (Mandler, 1972).

In terms of the avoidance-conditioning paradigm, she is given the opportunity to perform an appropriate response to avoid the painful stimulation. The woman anticipating labour under epidural block can form a predictive model of the experience, since the uncertainties of how painful it will be, how she will cope, what to do and how the

medication can affect her and her child can largely be discussed in advance, and factors such as how long the labour will be, become irrelevant.

Studies by Knapp et al. (1959), Radia et al. (1967), Epstein and Clarke (1970), Jonea et al. (1966) and Staub et al. (1971) show that the establishment of a predictive model of stressful stimulation, and having some control over the predictability of aversive stimulation, are anxiety reducing and preferred by subjects (both human and animal), even when no adaptive instrumental response is available to escape the stimulation.

In short, the offer of routine epidural anaesthesia may reduce anxiety in a number of ways. However, other sources of anxiety remain, namely the pain of administration of the anaesthetic and the fear that it may not be effective or safe. There is also a possible threat to her self-image if the woman sees herself as 'taking the easy way out' and anticipates social disapproval or feels guilty.

Kierkegaard (1944) maintained that the need to decide leads to anxiety, which is only eliminated when the individual acts or commits himself to action. Thus it is possible that the offer of routine epidural anaesthesia may increase anxiety level until a decision is taken. The present study is designed to include an assessment of these factors.

3.64 Summary

To summarize, the pregnant woman is particularly vulnerable to anxiety, and increased levels of anxiety during pregnancy have been reported. High levels of anxiety during pregnancy have been implicated

in various paranatal complications of childbirth, and the desirability of reducing anxiety level during pregnancy is widely accepted. The offer of routine epidural anaesthesia during pregnancy is likely to reduce anxiety level from a number of theoretical viewpoints, and the present study aims to investigate these effects.

CHAPTER FOUR: EPIDURAL ANAESTHESIA IN OBSTETRICS

(Glossary, page 51)

4.1 INTRODUCTION

It is necessary to be aware of the procedures and effects of epidural anaesthesia in order to assess the situation of experimental subjects in the present study.

This chapter provides a description of epidural anaesthesia in relation to other methods of obstetric pain relief, and indicates the effects of the procedure on mother and foetus. Information from the literature is presented as it applies to the specific methods being used by the anaesthetists in Johannesburg at the time of testing the subjects, since techniques vary from place to place.

Effects on the mother and foetus are presented in some detail to show the complexity of the decision facing subjects who are offered routine epidural anaesthesia, and to enable assessment of the questionnaire responses.

The questionnaire deals with the subjects' perceptions of the effects of the anaesthetic. These perceptions are based on opinions and information obtained from her doctor, antenatal therapist, family and friends, since few subjects are likely to understand the medical complexities involved. Perceptions of such an ill-defined situation for the subject are likely to be influenced by personal needs, desires and attitudes, in accordance with theories of cognitive consistency (Festinger, 1957; Osgood and Tannenbaum, 1955). Thus the questionnaire data is most

fruitfully viewed as the subjects' perceptions of the information presented in the present chapter.

4.2 PAIN RELIEF IN LABOUR

Various methods of pain relief are used in obstetrics.

4.21 Psychological Methods

The 'natural childbirth' methods of Read (1955) and Lamaze (1956), and adaptations of these methods, are widely used. The pregnant woman is taught what to expect during childbirth and is instructed in methods of breathing, relaxation, massage and attention-focussing which help to alleviate pain during labour (Buxton, 1962; Chertok, 1969; Earn, 1962; Pion, 1962).

Hypnosis, including self-hypnosis, may be used for pain relief (Abramson and Heron, 1950; Barber, 1963), as well as audio-analgesia, which involves the use of music (Conn, 1961).

4.22 Inhalation Techniques

Nitrous oxide and oxygen, often self-administered, are used for pain relief. Penthrane and Trilene are usually used in South Africa (Blecher, 1972).

4.23 Oral and Intravenous Medication

Drugs widely used are

a. Analgesics, which reduce pain, e.g., Morphine, Pethidine.

b. Amnesics, where the patient is afterwards unaware of what went on during labour, e.g., Valium.

c. Sedatives, which afford the woman some rest during a long labour, e.g., Seconal.

d. Gamma-oh-butyric acid, which puts the patient to sleep throughout labour (Blecher, 1972).

All of these drugs reduce the woman's awareness during labour and her ability to take part in the process of childbirth. All oral and intravenous medication crosses the placental barrier and affects the foetus to some extent (Dancis, 1962; Moya and Thorndike, 1962).

4.24 Block Techniques

These include spinal, paracervical, paravertebral, pudendal, caudal and epidural (also known as lumbar epidural, peridural, or extradural) blocks (Blecher, 1972). These involve blocking the nerve pathways which transmit painful stimuli during childbirth. The different blocks interfere with nerve pathways at different points between the site of pain (uterus, cervix, perineum) and the central nervous system.

Blocks administered nearer the source of pain (e.g., paracervical block administered near the cervix) affect the foetus more than blocks administered away from vascular areas (e.g., the epidural block).

4.3 EPIDURAL BLOCK (OR ANAESTHESIA)

4.31 Site

The epidural space is a potential cavity between the dura mater, a thick membrane enclosing the spinal cord and cerebrospinal fluid, and the well of the vertebral canal, which consists of bone and ligaments. (See Figure 4.1.)

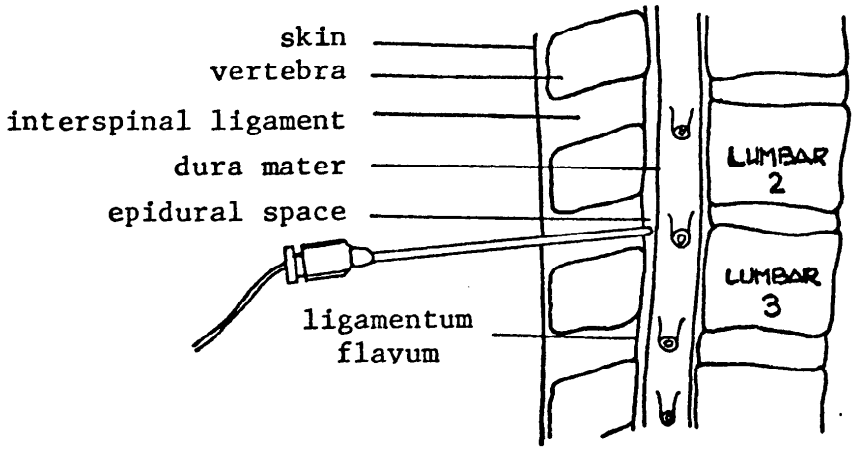

Figure 4.1 The epidural space

To reach the epidural space, the anaesthetist pushes his needle into the patient's back between two vertebrae, pierces skin and ligaments, but stops before piercing the thick dura mater. The anaesthetic fluid is injected into this epidural ('outside the dura') space, anaesthetizing all nerves which enter and leave the spinal cord near that level.

4.32 Procedure for Routine Epidural Block

In general, the anaesthetic is not administered until the woman is in established labour, either spontaneously or by induction.

She lies on her side or sits up while the anaesthetist introduces a large-bore needle into the epidural space. A fine plastic tube, called an epidural cannula, is passed through the needle, and the needle is withdrawn. The tip of the cannula remains in the epidural space throughout the labour, and local anaesthetic solution is introduced via this

cannula, and readministered as necessary.

Bupivacaine is usually used in Johannesburg, each dose providing analgesia for two to four hours. The anaesthetic is effective after approximately fifteen minutes, blocking pain from the cervix, uterus and perineum. Some loss of sensory input and motor power in the legs is also common.

4.4 EVALUATION OF EPIDURAL BLOCK

4.41 Pain Relief

The foetus is contained in the expanded uterus, which is a muscle, with a small neck, called the cervix, opening into the vagina. During labour the uterus contracts rhythmically, causing the cervix to dilate in order to allow the foetus to descend through the vagina and be born.

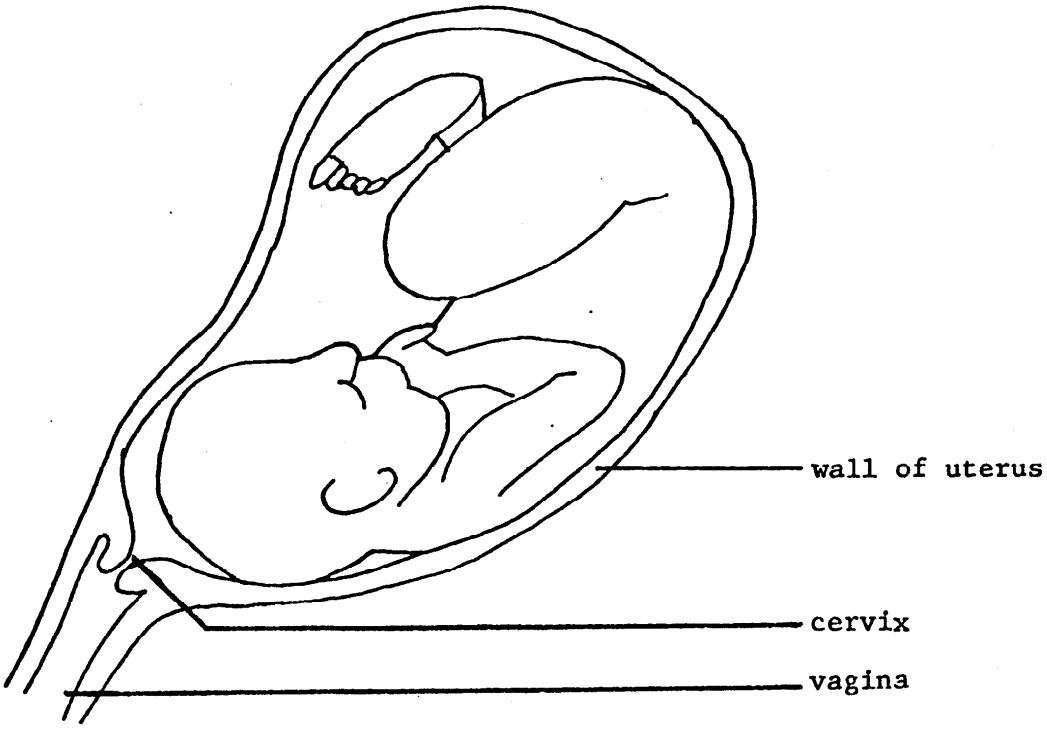

Figure 4.2 The uterus in pregnancy

The pain of labour is twofold; during the first stage pain is experienced from the uterine contractions and cervical dilation, while pain during the second stage originates in the stretching of the vagina as the foetus descends.

Local anaesthetic solution injected into the epidural space blocks pain transmission in the nerves before they enter the spinal cord. The nerves transmitting pain during the first stage enter the spinal cord in the thoracic area at T11 and T12, while those transmitting pain during the second stage enter in the sacral region at S2, 3 and 4. (See Figure 4.3.)

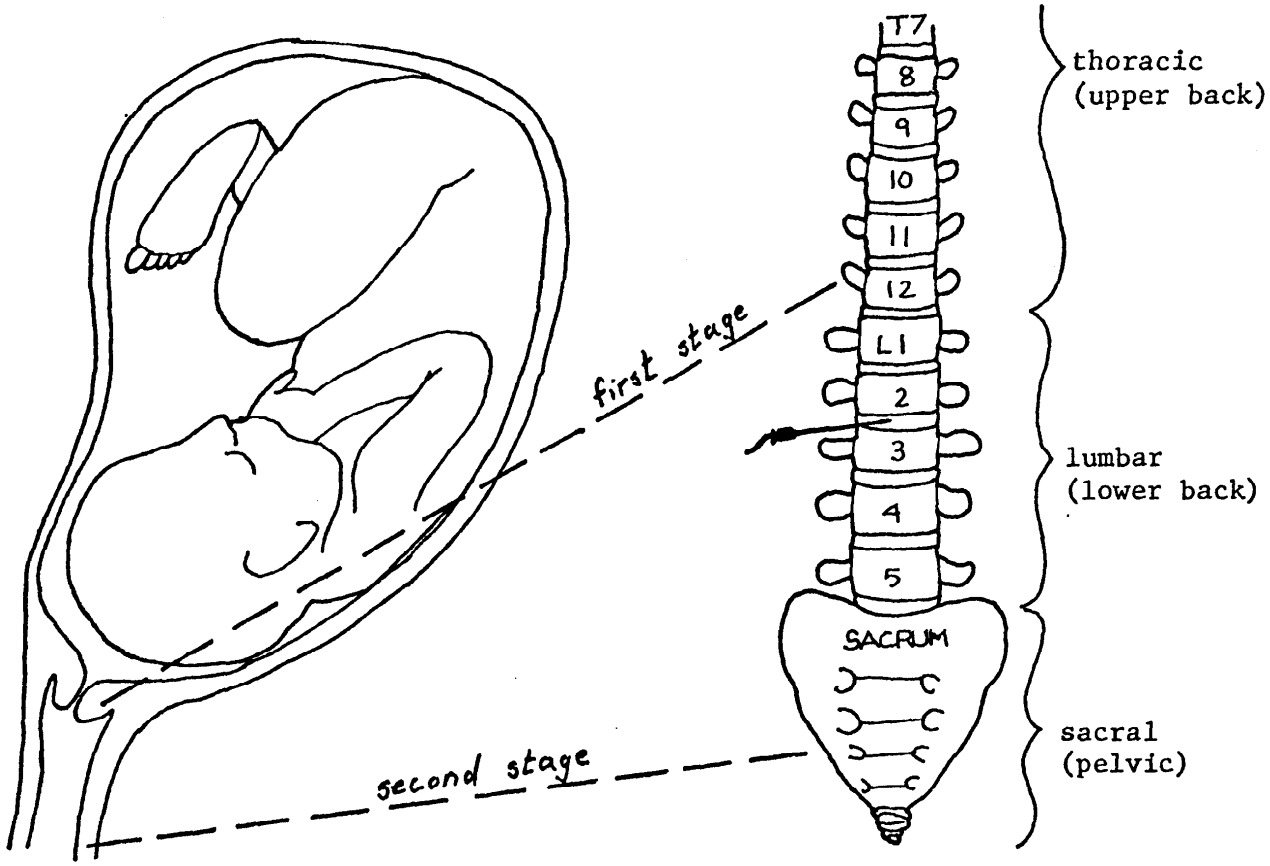

Figure 4.3 The spinal column and pain transmission during labour

For a lumbar epidural block, anaesthetic solution is administered in the lumbar area between L2 and L3, diffuses up and down the epidural space and thus anaesthetizes the required thoracic and sacral roots.

Crawford (1971) reported that 81% of his 930 patients who had had routine epidural blocks during labour were fully satisfied with the pain relief obtained. Twelve per cent felt they had been helped, and 6% reported no benefit. The remaining 1%, while satisfied with the pain relief, reported feeling deprived of the sensory experience of childbirth. The efficiency of the epidural block in relieving pain is supported by others (Doughty, 1971), including Sinton (1972).

Failure of the block may relate to anatomical abnormalities which prevent the proper diffusion of the anaesthetic solution. Unilateral block is sometimes reported, where the block is effective only on one side of the body.

4.42 Effect on the Mother

The pain relief obtained by epidural block allows the mother to keep her strength throughout a long labour, and usually obviates the need for oral or intravenous medication. She can cooperate with the obstetrician and be involved in the birth.

A drop in blood pressure usually accompanies the epidural block, due to blocking of the sympathetic nerves by the anaesthetic solution and subsequent vasodilation. This is valuable in the case of patients with high blood pressure, and epidural analgesia is indicated for patients with pre-eclamptic toxaemia (Moir, 1971). For most other patients the drop in blood pressure may be dangerous to the mother

and foetus, and must be prevented or treated by postural change or drugs.

The most commonly used anaesthetic agent, Bupivacaine, actually has vasoconstrictor properties of its own (Reynolds, 1971) and counters the vasodilation to some extent.

One effect of epidural block on the woman in labour is the loss of the 'bearing-down' reflex in the second stage (Pearson, 1971; Crawford, 1971). Half to three-quarters of Crawford's (1971) sample did not experience the urge to bear down, and this effect was dependent on the concentration of the anaesthetic solution used rather than the volume.

Thus epidural block is medically indicated for patients suffering from rheumatic or congenital heart disease, migraine or other conditions which may be aggravated by bearing down during the second stage. Difficult deliveries, e.g., breech deliveries, are sometimes aided by the patient being able to push or stop pushing on the doctor's instructions.

Epidural block often leads to a longer second stage due to loss of the pushing reflex, and a higher incidence of forceps delivery (see below).

The most commonly reported complication arising from epidural block is dura tap; that is, the needle or cannula punctures the dura mater and the anaesthetic solution is injected into the cerebrospinal fluid contained within the dura mater. Total spinal block is accomplished in this way. Post-spinal headache is a common after-effect of dura tap (Doughty, 1971). Transient or permanent paralysis has also been reported following epidural block in a small percentage of cases (Dawkins, 1969).

Systemic toxicity, leading to convulsions in severe cases, is a possible complication of anaesthesia. Bupivacaine is the preferred anaesthetic agent for epidural block in South Africa since the risk of systemic toxicity in mother and foetus is lower using Bupivacaine than using Lignocaine or Mepivacaine (Reynolds, 1971). It has a longer duration of action, requiring a smaller volume and lower concentration to be used, and has a lower cumulative tendency.

Direct needle damage to nerve roots, or contamination of the epidural space may occur (Edmonds, 1971). The analgesia provided by the epidural block may mask the warning pain of other complications due to various causes. The reported incidence of complications following epidural block is low (Doughty, 1971; Dawkins, 1969) but indicates the skill required to perform the block and the necessity of monitoring the patient.

To sum up, epidural block is superior to other forms of pain relief in labour in a number of aspects, but may lead to various complications. Common effects of the block on the mother are a fall in blood pressure and a loss of the bearing-down reflex, which may be advantageous or detrimental to her welfare. It is generally an efficient and safe form of obstetric analgesia for the mother, but requires skilled medical attention.

4.43 Effect on the Foetus

Any substance affecting the maternal blood supply affects the foetus to some extent, since the maternal and foetal circulatory systems are linked via the placenta, which acts as a selective filter (Dancis, 1962; Moya and Thorndike, 1962; Page, 1957). Intravenous and oral

medication usually cross the placenta, and large amounts are associated with depressed babies.

The epidural block is administered in an area meagrely supplied with blood vessels, thus the anaesthetic agent is found in relatively low concentrations in the mother's blood, and in even lower concentrations in the foetal circulation, particularly when Bupivacaine is used (Reynolds, 1971). However, Gordon (1968) has shown that large amounts of local analgesic drugs have a depressant effect on foetal circulation, and this potential hazard remains, particularly if large amounts of the anaesthetic solution are necessary. Depression of the foetal system may be fatal for babies at risk (Wilson, 1962).

Maternal hypotension (discussed above) and the methods of treating it, also affect the foetal circulation, and may be beneficial or detrimental to the welfare of the baby.

A higher incidence of forceps delivery is reported with epidural block (Crawford, 1971; Sinton, 1972), and is probably due to loss of the bearing-down reflex in the mother. Crawford (1971) reports that the increase in the forceps rate in Birmingham appears in conjunction with a fall in the rate of emergency Caesarian section. That is, forceps delivery, with its increased risk to the foetus, is more frequent with the block, but in some cases epidural anaesthesia may obviate the need for Caesarian section, an even more dangerous procedure for the baby and mother.

One sign of foetal distress is acidosis, where the normal acid-base balance of the blood is disturbed. Foetal acidosis is related to

maternal acidosis, and can be affected by maternal breathing and muscular exertion. Maternal hyperventilation is a response to pain which is reduced with epidural block, hence the foetus is less acidotic during the first stage of labour (Pearson, 1971). During the second stage, as Pearson (1971) reports, all foetuses become progressively more acidotic, and hence the increased duration of the second stage reported with epidural block may be detrimental to the welfare of the baby. Thus epidural block is beneficial to the foetus with respect to acid-base balance if the duration of the second stage is limited.

To summarize, there is some risk of the anaesthetic agent affecting the foetus directly, but this risk is far lower with epidural block than with most other medical methods of pain relief. Loss of the maternal bearing-down reflex leads to an increased rate of forceps delivery and a longer second stage of labour, both of which may be hazardous for the baby. On the other hand, the pain relief and total pelvic relaxation attained, and the reduction in maternal acidosis, have advantages for the foetus.

4.5 IMPLICATIONS FOR THE PRESENT STUDY

Epidural anaesthesia is a relatively safe and efficient procedure when indicated. Routine use of the procedure is more problematic, since it may be beneficial or detrimental in different aspects, and must be assessed in relation to other methods of obstetric pain relief and on the basis of the woman's perception of labour and her ability to cope with it.

The situation is ambiguous, since no one can predict the experience

or physical course of any specific labour, the coincidence of circumstances that will occur, nor the specific effects and side-effects of the epidural block in a particular case. In such undefined circumstances, perception of the situation is influenced by the needs, fears, attitudes and desires of the person concerned (Pepitone, 1950), and a decision made on the basis of this assessment. In line with psychological theories of cognitive consistency (Festinger, 1957, 1964; Abelson and Rosenberg, 1958) the decision regarding routine epidural block will be influenced by, and assimilated into, the person's cognitive and emotional structure in a way that optimizes equilibrium, which often involves reducing anxiety or tension.

The information presented in this chapter suggests that routine epidural block may be perceived and assessed in various ways. Psychological variables such as attitudes and needs are likely to influence the decision on routine epidural anaesthesia, and the decision is likely to influence attitudes and feelings, including anxiety level.

4.6 GLOSSARY

ACIDOSIS: acid condition of the blood (rather than neutral condition).

ANAESTHESIA: absence of feeling.

ANALGESIA: absence of pain.

BEARING-DOWN REFLEX: urge to push which helps to expel the baby from the vagina.

BREECH DELIVERY: the baby's body is born first rather than the head first.

CERVIX: neck of the uterus, opening into the vagina.

DEPRESSED BABY: lethargic baby with slowed down metabolism.

FORCEPS DELIVERY: the baby's head is eased out of the vagina by means of a special instrument, similar to pincers.

HYPERVENTILATION: overbreathing.

HYPOTENSION: low blood pressure.

INTRAVENOUS: injected directly into the vein.

PERINEUM: tissue between anus and vagina.

PLACENTA: vascular organ through which the foetus is nourished.

PRE-ECLAMPTIC TOXAEMIA: condition during pregnancy involving high blood pressure, excessive weight gain and retention of fluid.

SYMPATHETIC NERVES: nervous system controlling physiological response to emotion.

SYSTEMIC TOXICITY: poisoning of the system.

VASCULAR: containing blood vessels.

VASOCONSTRICTION: constriction of the blood vessels.

VASODILATION: dilation of the blood vessels.

VERTEBRAE: bones of the spine.

CHAPTER FIVE: HYPOTHESES, DESIGN AND METHOD

5.1 AIM

A current controversy in obstetric practice is the routine use of epidural anaesthesia in labour. Proponents of offering routine epidural block to pregnant women claim that it reduces maternal anxiety level during pregnancy. The present study aims to provide some empirical evidence in the controversy by investigating maternal anxiety level during pregnancy and its relation to routine epidural anaesthesia in labour.

5.2 HYPOTHESES

5.21 Rationale

The pregnant woman, as described in Chapter Two, finds herself in a situation of flux. Her world is changing in many ways, she faces new threats and opportunities emotionally and physically, and is incorporating these into her psychological system. This system is thus being reorganized and becomes particularly vulnerable.

Anxiety, as discussed in Chapter Four, is primarily a response to the threat that the individual's psychological system will be inadequate to cope with the world. The pregnant woman's particularly vulnerable system must contend with many threatening changes. The actual birth of her child, in particular, is anxiety provoking in many aspects.

Routine epidural anaesthesia eliminates or reduces many of the anxiety-producing features of labour, as discussed in Chapter Four, and proponents of the method claim that it lessens maternal anxiety level during pregnancy. This is desirable not only to ease the emotional state

of the pregnant woman, but to aid the reorganization of her system and reduce the risk of paranatal complications.

However, aspects of the offer of routine epidural anaesthesia may be anxiety producing in themselves to the pregnant woman. Thus, in investigating the effects of the offer on anxiety level, a nondirectional hypothesis is proposed.

5.22 Hypotheses

1. The major hypothesis to be tested is that women deciding to undergo labour with routine epidural anaesthesia will differ in general anxiety level during pregnancy from women deciding not to have routine epidural anaesthesia, women undecided whether or not to have routine epidural anaesthesia, and women not offered routine epidural anaesthesia.

2. Further analysis of the results will be undertaken to investigate whether women deciding on routine use of the anaesthetic differ during pregnancy from women deciding against routine use of the anaesthetic, women undecided about routine use of the anaesthetic and women not offered routine epidural anaesthesia in

   a. self-sentiment development
   b. ego strength
   c. ergic tension
   d. paranoid trend
   e. guilt proneness
   f. overt anxiety
   g. covert anxiety

These are the component factors of the composite anxiety score and this further analysis is intended as a supplementary, more detailed contribution to the testing of the major hypothesis.

3. A secondary analysis will be undertaken to see whether women deciding to undergo labour with routine epidural block will differ in their responses to a questionnaire on pregnancy and labour, from women deciding not to have routine epidural block, women undecided whether or not to have routine epidural block, and women not offered routine epidural block.

5.3 SUBJECTS

Subjects were white, married, pregnant women being treated privately by specialist obstetrician/gynaecologists in Johannesburg.

5.31 Control

1. It was planned to use married women to eliminate the added anxieties experienced by unmarried mothers.
2. It was decided to use subjects who were being treated privately by specialist obstretrician/gynaecologists.

This would ensure that each woman had at least one ongoing, important supportive relationship during her pregnancy, with her doctor. Hamilton (1955) reported that lack of emotional support is a major source of anxiety during pregnancy, and this selection of subjects in the present study was made in an attempt to control for this factor as far as possible. The doctors chosen to participate maintain personal supportive

relationships with all their patients.

3. Patients able to afford private treatment are generally above a minimum socio-economic level. By deciding to use such patients as subjects, an attempt was made to control for another major source of anxiety, viz. difficult socio-economic conditions (Hamilton, 1955; Robin, 1962). Questions 4, 5, and 6 of the questionnaire indicated socio-economic status of subjects, to allow verification of this assumption and to ensure that all subjects included in the analysis were of similar socio-economic level. The assumption is that subjects of similar socio-economic status share a similar macro-environment.

4. Subjects were planned to fall within a restricted age range. Preliminary statistical tests verified that age means and variances were similar in all groups (see Chapter Six).

5. Subjects were also required to fall within a restricted educational range, based on their responses to Q3 of the questionnaire.

   The assumption is that educational standard might affect the subject's understanding of, or response to, the offer of routine epidural anaesthesia. It transpired that all subjects in Group 1 (accepting the offer) had studied further after matriculating, hence this criterion was applied to all other subjects included in the analysis (see Chapter Six).

6. Only subjects who were fluent in English were required, to ensure that they understood the instructions and items of the anxiety scale and questionnaire.

7. All subjects were required to be of the same race; white subjects were to be used.

8. A similar distribution of primiparae and multiparae was required in all groups. Preliminary statistical tests (see Chapter Six) indicated that the difference in the distribution of primiparae and multiparae among the groups was not statistically significant, but the factor of parity was taken into account in subsequent analysis of the results as a precautionary measure.

9. A similar distribution of subjects attending antenatal classes was required for all groups and this was confirmed by preliminary statistical analysis (see Chapter Six). This was necessary in the light of the literature indicating that attendance at antenatal classes reduces anxiety level in pregnancy (Biskind, 1958; Pleshette et al., 1956; Klusman, 1975).

10. The distribution of women having had prior unsuccessful pregnancies was required to be similar for all groups. This was verified by preliminary statistical analysis (see Chapter Six), and was again felt to be a factor which might influence anxiety level in pregnancy.

11. It was necessary to ensure, as far as possible, that subjects from the different participating doctors were comparable.

The two doctors offering routine epidural block to their patients are in partnership, and there appears no reason to believe that the patients of one doctor differ systematically from those of the other doctor, or that the doctors differ in

their attitude toward routine epidural block or in their handling of patients in any major relevant way. All eligible patients of both doctors were to be recruited. Thus it was felt that subjects in Groups 1, 2 and 3 would indeed be comparable, irrespective of which doctor they consulted.

Control subjects were to be recruited from the patients of three different doctors who practise independently of one another. In an attempt to ensure that the control group would be comparable to the experimental groups, doctors of similar status and reputation to those offering routine epidural block were chosen. Patients of three independent doctors were to be used to minimize any systematic differences between patients of the doctors providing the control subjects and those providing the experimental subjects.

It was felt that these precautions, in addition to controlling the variables previously discussed, would yield a control group that was comparable to the experimental groups.

5.32 Summary of Subjects

Four groups of married, pregnant women attending specialist obstetrician/gynaecologists in Johannesburg served as subjects. The groups were similar in age, race, fluency in English, socio-economic status, attendance at antenatal classes, educational standard, prior unsuccessful pregnancies, and the factor of parity was included in analysis of the results obtained.

GROUP 1 comprised women who had decided to accept the offer of routine epidural anaesthesia.

GROUP 2 comprised women who had decided to decline the offer of routine epidural anaesthesia.

GROUP 3 comprised women who were undecided whether to accept or decline the offer of routine epidural anaesthesia.

GROUP 4 comprised women who had not been offered routine epidural anaesthesia, and served as a control group.

Each subject was characterized by

1. membership of Group 1, 2, 3, or 4.
2. general anxiety score on the IPAT anxiety scale.
3. scores on each of the five anxiety factors measured by the IPAT scale, as well as a covert and an overt anxiety score.
4. responses to the questionnaire.

5.4 PROCEDURE AND SUBJECT SELECTION

Five obstetrician/gynaecologists in Johannesburg participated in the study. Over the period of testing (October, 1973 to August, 1974) two of the doctors offered all their patients routine epidural anaesthesia, unless medically contraindicated. These patients became subjects in Groups 1, 2, and 3, depending on whether they had accepted, declined or had not decided on the offer at the date of testing. Three other doctors did not offer their patients routine epidural anaesthesia, and these patients comprised the control group, Group 4.

Each subject was interviewed, without prior arrangement, in her doctor's waiting room at a scheduled appointment in the final three weeks of her pregnancy. At this stage labour may begin at any moment.

The interviewer was either the author or the doctor's receptionist, who had previously been briefed.

Subjects were told that their doctor was collaborating in a study of the attitudes, experiences and feelings of pregnant women by giving permission for his patients to be interviewed. Each woman was asked to complete the 'self analysis form' (IPAT anxiety scale) and thereafter the questionnaire. The subject and interviewer then discussed the contents of the forms briefly to the subject's satisfaction. Only one subject refused to cooperate on the grounds of tiredness, but subsequently consented on her next visit to the doctor.

This procedure was followed as married women in their final three weeks of pregnancy became available in the rooms of the five participating doctors, until one hundred and one subjects had been interviewed over a period of ten months. Subjects in Groups 1, 2, and 3 were interviewed over the entire period, while control subjects were interviewed over a slightly shorter period due to the larger number of them available.

5.5 MEASUREMENT OF VARIABLES

5.51 Anxiety Scale

5.511 Description

The South African adaptation of the IPAT anxiety scale (Institute for Personality and Ability Testing, Illinois, USA) was used. Labelled 'Self Analysis Form', it is a soundly-based, objectively-scored questionnaire, comprising forty items, each with three alternative responses.

A total anxiety score is obtained, as well as an overt anxiety

score, a covert anxiety score, and scores on each of five distinct factors contributing to the overall score. Half the items deal with manifest, conscious anxiety and contribute to the overt anxiety score; the other twenty items refer to more indirect expressions of anxiety and contribute to the covert anxiety score. Scores on each of the five anxiety factors are made up of both overt and covert items.

The anxiety factors contributing to the overall score are:

1. Self-sentiment development: degree of motivation to integrate behaviour about approved, conscious, and socially-approved standards.

2. Ego strength: the capacity to control and express ergic tensions in a suitably realistic way.

3. Ergic tension: the degree to which anxiety is generated by excited drives and unsatisfied needs.

4. Paranoid trend.

5. Guilt proneness: feelings of unworthiness, anxiety and depression.

The number of items included in the scale for each factor is dependent on the loading of that factor on the second-order factor of general anxiety. That is, each factor makes a weighted contribution to the total anxiety score.

5.512 Development

R. B. Cattell developed the IPAT anxiety scale on an empirical basis rather than from a rigid theoretical approach to anxiety. All

known questionnaire responses in personality testing yielded sixteen major personality dimensions (using the technique of factor analysis), and led to the development of the 16PF personality battery (Cattell, 1956; Cattell, 1957; Cattell and Stice, 1957).

Six of these dimensions seemed on face value to be concerned with anxiety as clinically defined by psychiatrists. Using the statistical methods of correlation and factor analysis (Cattell, 1952) these dimensions were shown to cluster together statistically (Cattell, 1952; Cattell and Scheier, 1961) and this clustering has been confirmed by testing involving many subjects (Cattell and Gruen, 1955; Cattell, Dubin and Saunders, 1954; Cattell and Scheier, 1961; Karson and Pool, 1958; Rosenthal, 1955; Scheier and Cattell, 1958).

In developing the IPAT anxiety scale, Cattell included only five separate dimensions of personality, those which had the highest loadings on the second-order factor of general anxiety. Thus the scale measures a definite, replicable, unique second-order factor developed from previous work on personality testing, and is soundly based on sophisticated statistical techniques. The forty items included in the anxiety scale were culled from a few thousand possible items after extensive preliminary testing (Cattell and Stice, 1957; Cattell, 1956).

5.513 Validity and reliability

CONSTRUCT VALIDITY of the scale has been supported by various experiments since its appearance.

IPAT anxiety scores tend to rank subjects in the same order as good diagnosticians (Cattell and Scheier, 1961); the scale differentiates

neurotic, but not psychotic, subjects from normal subjects (Epstein, 1972); factor analysis distinguishes anxiety from related concepts such as arousal, effort-stress, neuroticism and depression (Cattell and Scheier, 1959); and IPAT anxiety scores vary in the expected direction of change in general anxiety level in various experiments (Levitt and Persky, 1962).

The IPAT anxiety scale also correlates highly with other widely-used indices of anxiety, both objective and questionnaire measures (Cattell and Scheier, 1959; Cattell and Scheier, 1961; Levitt and Persky, 1962).

RELIABILITY: the test-retest and internal consistency measures of reliability reported have been satisfactorily high (Cattell and Scheier, 1961; Cattell, Scheier and Madge, 1968).

The handbook of the South African adaptation of the scale reports reliability coefficients of .76 to .87 and similarly high validity coefficients. Validity and reliability coefficients are naturally lower for part-scores.

5.52 Choice of the IPAT Anxiety Scale

Several practical and theoretical considerations led to the choice of the IPAT anxiety scale for the present study.

5.521 Practical considerations

The scale is in questionnaire form, with the subject required to check one of three responses provided. Administration of the scale is easy and convenient, since it is handed to the subject who fills it in

herself, generally in five to ten minutes. The instructions are printed on the front page, so instructions, questions and alternative responses are standard for all subjects. Scoring is also objective and standardized, using a scoring key, and can be reliably scored by any scorer, whether psychologically trained or not.

The scale is labelled 'Self Analysis Form' rather than 'Anxiety Scale', and the questions are generally nonstressful. The first half of the scale comprises covert anxiety items, and subjects were allowed to fill in the forms anonymously if desired. Only four subjects did so. Thus the anxiety-assessment situation using the IPAT scale is as non-threatening as possible for the subject, and the privacy and impersonality of the situation are conducive to frankness in responding.

In addition to the convenience, standardization and lack of threat to the subject, use of the questionnaire was felt to be preferable to an interview since it is less susceptible to distortion and influence by suggestion or interviewer bias, and may thus be administered by different testers without affecting the anxiety assessment.

The South African adaptation of the IPAT anxiety scale is applicable to subjects in the present study in regard to age and educational level, as well as language and race, and particularly since it has been standardized in South Africa.

Research has demonstrated that it can be reapplied at intervals and is sensitive to changes over time and conditions (Cattell and Scheier, 1961; Cattell, Scheier and Madge, 1968), thus it is likely to be sensitive to the experimental conditions of the present study and may be used in further followup research if indicated.

Reliability and validity are key considerations in the choice of any instrument for research purposes, and the reliability and validity of the scale are known (see pg. 63) and are satisfactorily high. The IPAT scale measures general, free-floating, manifest anxiety level with highly reliable test-retest results and a good internal consistency among the items.

The reliability of ratings made by clinicians, working to the same definition of anxiety, in an interview situation, is reported by Cattell and Scheier (1961) to be .2 to .3, while reliability coefficients for the IPAT anxiety scale are reported to be .7 and above. Yet the IPAT scale tends to rank subjects in the same way as the central tendency of diagnosticians (Cattell and Scheier, 1961), leading to the inference that the scale measures general anxiety level as defined clinically, but with greater reliability than clinical interviews. Obviously clinical interviews are preferable in obtaining a full picture of a specific patient, but the IPAT anxiety scale seems preferable for use in research due to its high degree of standardization and reliability.

However, the limitations of any brief questionnaire must be borne in mind, and the need to supplement the information obtained from the anxiety scale is apparent. Items of the scale may be incorrectly perceived or understood, or other artefacts of the scale itself may influence the subject's responses. The IPAT scale is constructed so that left-right preferences cannot speciously affect the score, and the items are verbally undemanding. Although high-score responses are more frequently acquiescent, this may in fact add to the validity of the score, as the tendency to admit defects in oneself is part of the anxiety syndrome (Bendig, 1959;

Cattell and Scheier, 1958; Cattell and Scheier, 1961; Couch and Keniston, 1960). Nevertheless, such factors as social desirability, and possibly others, may influence the anxiety scores in unknown ways, and these limitations must be borne in mind when interpreting results. In the present study a further questionnaire was administered to subjects in which certain questions regarding anxiety were included, to supplement the IPAT scores.

Thus the main practical reasons for choosing the IPAT anxiety scale in the present study were its ease and objectivity of administration and scoring, its lack of threat and its applicability to the subjects in the present study, its sound construction, and the large body of literature supporting its reliability and validity as a measure of general anxiety level.

5.522 Theoretical considerations

One advantage of the IPAT scale for the present study is that it is empirically based rather than bound to a particular theoretical model of anxiety, since such models abound and none is generally accepted. However, the component factors of the scale lend themselves to theoretical interpretation and include many of the major aspects of anxiety theory discussed in Chapter Three, which are applicable to the present study.

Trait anxiety, that is, the susceptibility of the pregnant woman to state anxiety, is the concern of the present study. Cattell (1966) regards the IPAT scale as measuring trait rather than state anxiety. From his factor analytical studies he reported that the same factors contribute to state anxiety, but in different proportions from trait anxiety.

Thus if overall IPAT scores do not differ among the groups of subjects in the present study, but large differences are found among certain factor scores, one may rearrange the scale statistically, according to Cattell's weightings, and investigate whether the groups of subjects actually differ in state anxiety at the time of testing.

However, the discussions in Chapter Two and Three indicate expected differences in trait anxiety among the groups, and that the offer of routine epidural anaesthesia is likely to affect the woman's general anxiety level (i.e., her sensitivity to anxiety-provoking situations, or trait anxiety) which is measured by the IPAT scale. Levitt and Persky (1962) support this interpretation, that the IPAT scale measures the type of anxiety with which the proponents of routine epidural anaesthesia are concerned. They concluded on the basis of experimental data using a number of anxiety measures, that "the IPAT scale is sensitive to a state of readiness to experience anxiety, as distinct from anxiety level itself" (where anxiety level refers to the state of anxiety).

In studying the component factors of the IPAT scale as well as the individual items, the relevance of the scale to our working definition of anxiety (Chapter Three), as well as to other major anxiety theories, is apparent.

In terms of Freudian anxiety theory, ergic tension (factor Q4) corresponds to id-generated anxiety. Ego weakness (factor C) corresponds to anxiety generated by the threat to the ego, and guilt proneness (factor O) to anxiety due to the demands of the superego (Freud's 'moral anxiety').

The integrated definition of anxiety presented in Chapter Three includes aspects of other major theories as discussed, and most of the important features of that definition are represented in the IPAT scale. Anxiety is regarded as an emotional state, reflected in items such as No. 17 "I feel restless ...". The body is physiologically aroused, tapped in questions such as No. 21 "I use more energy than most people in getting things done". The fundamental threat that the individual's system will be inadequate to cope with the world is involved in the factors of ego weakness (factor C) and lack of self-sentiment development (factor Q3). Suspiciousness or paranoid trend (factor L) incorporates the concept of threat in anxiety, since the paranoid person is prone to perceive many situations as threatening.

Thus the IPAT scale corresponds to the theoretical view of anxiety on which the present study is based.

It also lends itself to further followup research in that any differences found in the component factors of the scale can be studied in greater depth by using the 16PF factor items as described by Cattell (1956). (For any particular factor, the full 16PF form is more reliable and valid than any IPAT part-score.)

In brief, the advantages of the IPAT scale are that it is in accordance with the theoretical view of anxiety on which the present study is based while being an empirically-developed instrument, it allows interpretion of any results obtained, and may be used for further investigation in this field.

5.53 Questionnaire

A questionnaire was devised to augment the information obtained from subjects. After filling in the IPAT form each subject was asked to complete this questionnaire, anonymously if desired (only four subjects did not wish to supply their names).

5.531 Aims of the questionnaire

1. To provide data for subsidiary analyses, e.g., primiparae vs. multiparae.
2. To verify assumptions implicit in the experimental design, e.g., subjects are all above a minimum socio-economic level.
3. To eliminate subjects out of the range of the study, e.g., out of the required age or educational range.
4. To provide supportive evidence for the main results obtained with the IPAT anxiety scale, and to check on these.
5. To investigate attitudes and opinions which may possibly lead to further research in the field.

5.532 Description of the questionnaire

The questionnaire comprises four sections.

SECTION 1: GENERAL This consists of fourteen items; ten open-ended questions and four items with alternative responses provided. It deals with general information which provides a picture of the subject (e.g., schooling), and classifies subjects into subgroups (e.g., number of children), eliminates unsuitable subjects (e.g., age) and verifies assumptions (e.g., socio-economic status). Questions 10, 11 and 12 check

on the subject's history of knowledge of the availability of routine epidural anaesthesia to her, and the time of her decision.

SECTION 2: YOUR OPINIONS This consists of sixteen questions, each with four alternative responses. The items were aimed at investigating attitudes and opinions on childbirth and epidural anaesthesia, with the intention of exploring which attitudes and opinions most influence the decision on whether or not to have routine epidural anaesthesia.

SECTION 3: YOUR OWN EXPERIENCES This section consists of fifteen questions, each with four alternative responses. These items were mainly intended to augment the main results obtained with the IPAT scale.

Physical symptoms which may be affected by anxiety level are investigated, as an indirect indication of anxiety level. These items were obtained from the literature on anxiety and from discussions with doctors and paramedicals in the field. Questions 12, 13 and 14 enquire about directly-experienced anxiety.

Questions 7 and 11 deal with perceptions which may be interpreted projectively as indications of anxiety level. Projective measures have previously been found useful in this regard in studying pregnant women (Davids and de Vault, 1960; McConnel and Daston, 1961; Klatskin and Eron, 1970; McDonald, 1965; Uddenberg and Hakanson, 1972). Question 15 is a general summing-up opinion of the offer of routine epidural anaesthesia.

SECTION 4 This section is designed to find out some of the social pressures exerted on the pregnant woman who is offered routine epidural anaesthesia, and possibly to discover which of these pressures is influential in her decision making.

The section consists of a list of people and the subject is required to say what she thinks each person on the list would feel regarding her having routine epidural anaesthesia.

A shortened form of the questionnaire was devised for subjects in Group 4 (control group) in which all questions pertaining to epidural block are eliminated, including the entire Section 4. It was planned to compare the responses of all subjects on items included in the shorter questionnaire and to compare the responses of subjects in Groups 1, 2 and 3 on the additional questions relating to epidural anaesthesia.

5.533 Development of the questionnaire

The questionnaire was devised in order to augment, in a standardized way, the results obtained from the IPAT anxiety scale, to aid in the interpretation of these results. After reviewing the literature and extensive discussions with anaesthetists, obstetrician/gynaecologists, psychologists, antenatal therapists and pregnant women, items which seemed significant were included in the questionnaire. Since the questionnaire is exploratory and subsidiary to the main investigation no other item-selection procedures were employed.

Aside from the open-ended questions, each item consists of an unfinished statement with four alternative finishing responses. These consist of two extreme and two moderate directed answers. The alternative responses were randomized using a random numbers table to eliminate the possibility of position preference affecting the subjects' answers. The subject is required to check the one response most applicable to herself, or to fill in her own answer or comment, if desired. This

relatively free procedure was adopted in an attempt to obtain answers which could be scored and compared across groups, and still allow subjects to contribute valuable opinions and perceptions.

5.534 Scoring

Prior to administration of the questionnaire to any subjects, alternative responses were assigned scores of 1, 2, 3 or 4 on the basis discussed below.

SECTION 1: GENERAL These responses are used for classification of subjects in terms of age, socio-economic level, number of pregnancies, etc.

SECTION 2: ATTITUDES AND OPINIONS Questions 1, 2, 3, 4, 5, 6, 8, 9, 10, 14, 15 and 16 deal with various aspects of labour, either 'normal' or with epidural anaesthesia. Replies indicating a 'favourable impression' (of normal labour or labour under epidural anaesthesia, whichever is the subject of the question) receive a low score (1 or 2), while responses indicating an 'unfavourable impression' score high (3 or 4). Questions 7, 11 and 13 are scored according to intensity, a strong response being scored high, a weak response receiving a low score. Responses to question 12 are regarded as nominal data, although one might regard the responses as being on a scale from modern to sensible, to weak to neurotic. However, the connotations of the words are too varied to support such ranking of the responses.

SECTION 3 As the aim of this section is to obtain indices of anxiety directly, indirectly and projectively, 'high anxiety responses' receive higher scores. Questions 12 and 13, direct anxiety items, score high

for responses indicating more anxiety. Questions 1, 2, 3, 4, 5, 8, 9, 10, the indirect items dealing with psychosomatic symptoms, receive high scores for 'more frequent' responses. Questions 7 and 11, the projective items, have high scores for 'less favourable perceptions' of foetal movements and the physical appearance of pregnant women. Excessive weight gain has been associated with high levels of anxiety during pregnancy (Grimm, 1961), and Question 6 gives higher scores to subjects reporting greater weight gain.

SECTION 4 The position of each response was noted.

NOTE: For all subjects, scoring of questionnaire responses was done by the author. As the scoring system was fixed before use of the questionnaire, the scored responses could not be affected by scorer bias. In the case where a subject did not tick one of the alternative responses but supplied her own, the response was not included in the statistical analysis of that item, but was noted, as were additional comments.

CHAPTER SIX: RESULTS

6.1 INTRODUCTION

In all statistical analyses, the .05 significance level was the required standard for acceptance or rejection of the null hypothesis.

6.11 Data Obtained

One hundred and one subjects were interviewed. Each subject was characterised by

1. Membership of Group 1, 2, 3 or 4.

2. Scores on the IPAT Anxiety Scale.
   a. total anxiety score
   b. covert anxiety score
   c. overt anxiety score
   d. self-sentiment development
   e. ego strength
   f. paranoid trend
   g. ergic tension
   h. guilt proneness

3. Responses to the questionnaire (the full questionnaire for subjects in Groups 1, 2 and 3; the abbreviated questionnaire for subjects in Group 4).

6.12 Control of Variables

1. Subjects not qualifying for inclusion in the analysis were eliminated. These were:

a. Subjects with medical conditions which could be affected by the epidural block. For these subjects, the doctor made the decision concerning the anaesthetic on medical grounds. Three subjects were eliminated in this way.

b. Subjects in all groups who were aware at the time of testing that their babies were likely to be delivered by Caesarian section for medical reasons. Two subjects fell into this category.

c. Subjects who fell below the specified educational standard; the criterion for inclusion was that subjects responded to Q3 Section 1 by ticking (a) or (d). That is, all subjects included in the analysis had trained or studied further after matriculating (or equivalent). This relatively high educational standard was attained by all subjects in Group 1 and was thus applied to all subjects in Groups 2, 3 and 4 in order to control, to some extent, any effect of educational level on anxiety level or on understanding of, or response to, the offer of routine epidural anaesthesia. Fifteen subjects were eliminated on the basis of this requirement.

d. Subjects who fell below the minimum socio-economic level. Most subjects attending private specialists were in the middle or upper socio-economic groups; one subject of the lower socio-economic group who was being treated privately was eliminated. Estimation of socio-economic status was based on responses to questions 4, 5 and 6 of Section 1.

e. Group 3 consisted of only four subjects qualifying for

inclusion in the analysis. This group was thus eliminated from the analysis and is discussed in Chapter Seven.

2. All subjects were expecting their first, second, third or fourth child. Women expecting fifth or subsequent children were not tested.

3. All subjects were married.

4. Age: All subjects were in the age range 21 to 37 years. The mean age for each group was calculated. The Cochran test for homogeneity of variance showed no significant differences among the variances of the groups (see Table 6.1), and a subsequent one-way analysis of variance showed no significant differences among the mean ages of the groups (see Table 6.2).

Table 6.1 - Age: Means, Variances and Test of Homogeneity of Variance (Winer, 1971)

	Group 1	Group 2	Group 4
Mean	27.10	26.39	28.19
Variance	17.50	18.27	17.46

Cochran C: s^2 largest/Σs_j^2 = .3432 (3,36) nonsignificant

required value for significance at .05 level, .4748

Table 6.2: Analysis of Variance for Ages (Ferguson, 1966)

Source of Variation	SS	DF	Mean Square s^2
Between groups	48	2	24.0
Within groups	1363	77	17.7

$F = s_b^2/s_w^2 = 1.36$ nonsignificant

required value for significance at the .05 level, 3.12

5. Parity: Each group was divided into primiparae and multiparae. A chi-squared test was applied to ascertain whether the distributions of primi- and multiparae were significantly different among Groups 1, 2 and 4 (see Table 6.3). The obtained chi-squared value of 4.73 did not reach the required .05 significance level, but did approach it. As a precautionary measure the subsequent analysis of the IPAT anxiety scores was expanded to take account of the factor of parity. A 3 x 2 analysis of variance was performed rather than a one-way analysis of variance.

Table 6.3: Parity: Chi-squared Test (Expected frequencies in brackets after observed frequencies.)

	Group 1	Group 2	Group 4	Total
Primiparae	4(8.14)	11(8.41)	16(13.95)	31
Multiparae	17(12.86)	12(14.09)	20(22.05)	49

chi-squared = $(obs - exp)^2/exp.$ = 4.73 nonsignificant

required value for significance at the .05 level, 5.99 (Ferguson, 1966)

6. Attendance at antenatal classes: There are indications that attendance at antenatal classes may affect anxiety level during pregnancy (Biskind, 1958). Groups 1 and 2 were compared in the number of women attending antenatal classes. Group 4 was not included as one of the doctors involved insisted on such attendance and thus this group (drawn from the patients of three different doctors) was not comparable to Groups 1 and 2.

Since the data did not meet the requirements of the chi-squared test regarding expected cell frequencies (Ferguson, 1966) when primi- and multiparae in the two groups were compared, primiparae were first compared to multiparae preliminary to a comparison of the groups. The reasoning and criteria applied are the same as for the questionnaire data (see page 88).

Table 6.4: Attendance at Antenatal Classes: Chi-squared Test

(Expected frequencies in brackets after observed frequencies.)

1. Parity	Primiparae	Multiparae	Total
Classes	15(9.55)	13(18.45)	28
No classes	0(5.45)	16(10.55)	16

Chi-squared corrected 10.73 significant at the .05 level.

Groups 1 and 2 were compared separately for primiparae and multiparae since significant differences were found due to parity.

2. Primiparae	Group 1	Group 2	Total
Classes	4(4)	11(11)	15
No classes	0(0)	0(0)	0

No statistical comparison is possible since there are no subjects in the 'no classes' category. All primiparae attended antenatal classes.

3. Multiparae	Group 1	Group 2	Total
Classes	5(7.62)	8(5.38)	13
No classes	12(9.38)	4(6.62)	16

χ^2 corrected 2.58 nonsignificant

Thus the distribution of subjects attending and not attending antenatal classes did not differ significantly in Groups 1 and 2 but did differ significantly between primi- and multiparae.

7. Prior unsuccessful pregnancies: Responses on Section 1 Q8 (number of children) and Q9 (number of pregnancies) were noted, and women reporting a greater number of prior pregnancies than children were regarded as having had prior unsuccessful pregnancies.

This was done in an effort to determine whether the groups differed in the distribution of women who had had prior pregnancies which were presumably unsuccessful due to abortion, miscarriage, foetal death, etc. The question was not posed more directly since the questionnaire was designed to be as nonthreatening for the respondents as possible.

While it is possible that some women had lost children due to death in childhood, it is likely that reporting a greater number of pregnancies than children more generally reflects prior unsuccessful pregnancies, and the data are analysed on this assumption.

Table 6.5: Prior Unsuccessful Pregnancies: Chi-squared Test

	Group 1	Group 2	Group 4	Total
prior unsuccessful pregnancies	2(4.2)	6(4.6)	8(7.2)	16
no prior unsuccessful pregnancies	19(16.8)	17(18.4)	28(28.8)	64

χ^2 2.08 nonsignificant

Thus the groups do not differ on this variable.

8. Prior Epidural Block: The number of women in each group who had previously experienced epidural block was noted.

Table 6.6: Prior Epidural Block: Chi-squared Test

	Group 1	Group 2	Group 4	Total
prior epidural block	4(1.35)	0(1.47)	1(2.18)	5
no prior epidural block	17(19.65)	23(21.53)	33(31.82)	73

These data do not meet the criteria for the chi-squared test (see page 89) and can only be analysed statistically by further collapsing.

(a) Combining Groups 1 and 2 to compare women offered routine epidural block to the control group.

	Groups 1 and 2	Group 4	Total
prior epidural block	4(2.82)	1(2.18)	5
no prior epidural block	40(41.18)	33(31.82)	73

χ^2 corrected = 0.40 nonsignificant

Thus women offered epidural block do not differ in prior experience of the anaesthetic from those in the control groups who were not offered.

(b) Comparing only Groups 1 and 2, to assess whether women accepting routine epidural block differ from those declining.

	Group 1	Group 2	Total
prior epidural block	4(1.91)	0(2.09)	4
no prior epidural block	17(19.09)	23(20.91)	40

Fisher exact probability = 0.04 significant at the .05 level

This indicates that women who have had prior experience of epidural anaesthesia are likely to accept routine epidural block when offered during pregnancy. Further discussion on page 132.

6.2 ANALYSIS OF ANXIETY SCORES

6.21 Total IPAT Anxiety Scores

Total IPAT anxiety scores were analysed, using a 3 x 2 design (Winer, 1971, unequal cell frequencies).

Table 6.7: Mean Total Anxiety Scores

	Group 1	Group 2	Group 4
Primiparae	31.50	30.09	30.19
Multiparae	32.12	30.00	28.55

In this case rather than the Cochran test used previously, Bartlett's test of homogeneity of variance was applied to the data (see Table 6.8).

This test was chosen due to the unequal frequencies in the cells, from four primiparae Group 1, to twenty multiparae Group 4.
Unequal frequencies in the groups for larger numbers of subjects, as in Table 6.1 are acceptable (Winer, 1971) but for small numbers of subjects (four in the present analysis in one cell) the Cochran test is inapplicable.

Table 6.8: Bartlett's Test for Anxiety Scores (Winer, 1971)

	SS	DF	MEAN SQUARE
Group 1 Primiparae	197.00	3	65.67
Group 1 Multiparae	2613.69	16	163.36
Group 2 Primiparae	1010.93	10	101.09
Group 2 Multiparae	1610.00	11	146.36
Group 4 Primiparae	1460.58	15	97.37
Group 4 Multiparae	958.90	19	50.97
error	7851.02	74	106.09

$\chi^2 = (2.303/c)(f \log MS_{error} - f_j \log s_j^2) = 6.36$ nonsignificant

required value for significance at the .05 level, 11.1

Thus there are no significant differences in variance among the groups.

A 3 x 2 analysis of variance showed no significant differences among the three groups, between primi- and multiparae, nor any significant interaction effect (see Table 6.9).

Table 6.9: Analysis of Variance for Anxiety Scores (Winer, 1971)

Variation	SS	DF	MEAN SQUARE	F
Groups	114.88	2	57.44	.5414
Parity	16.29	1	16.29	.1535
Interaction	8.83	2	4,42	.0417
Error	7851,06	74	106,10	

All obtained values of F are nonsignificant.

All required values for significance are greater than 1.

A frequency polygon showing total anxiety scores in Groups 1, 2 and 4 is found in Figure 6.1, page 84.

Thus the proposed null hypothesis is accepted, that women deciding to have routine epidural anaesthesia, women deciding not to have routine epidural anaesthesia and women not offered routine epidural anaesthesia do not differ in general anxiety level during pregnancy.

6.22 IPAT Part-Scores

Part-scores of the IPAT anxiety scale are summarized in Table 6,10.

Table 6.10: Mean IPAT Part Scores

	Group 1	Group 2	Group 4
Covert anxiety	14.90	14.70	14.05
Overt anxiety	17,00	15,35	15,20
Self-sentiment development Q3	6.95	7,00	6,31
Ego strength C	3.33	3,48	2,92
Paranoid trend L	3.38	3.52	3.19
Guilt proneness O	10.71	9.13	9.50
Ergic tension Q4	7.62	6.91	7.31

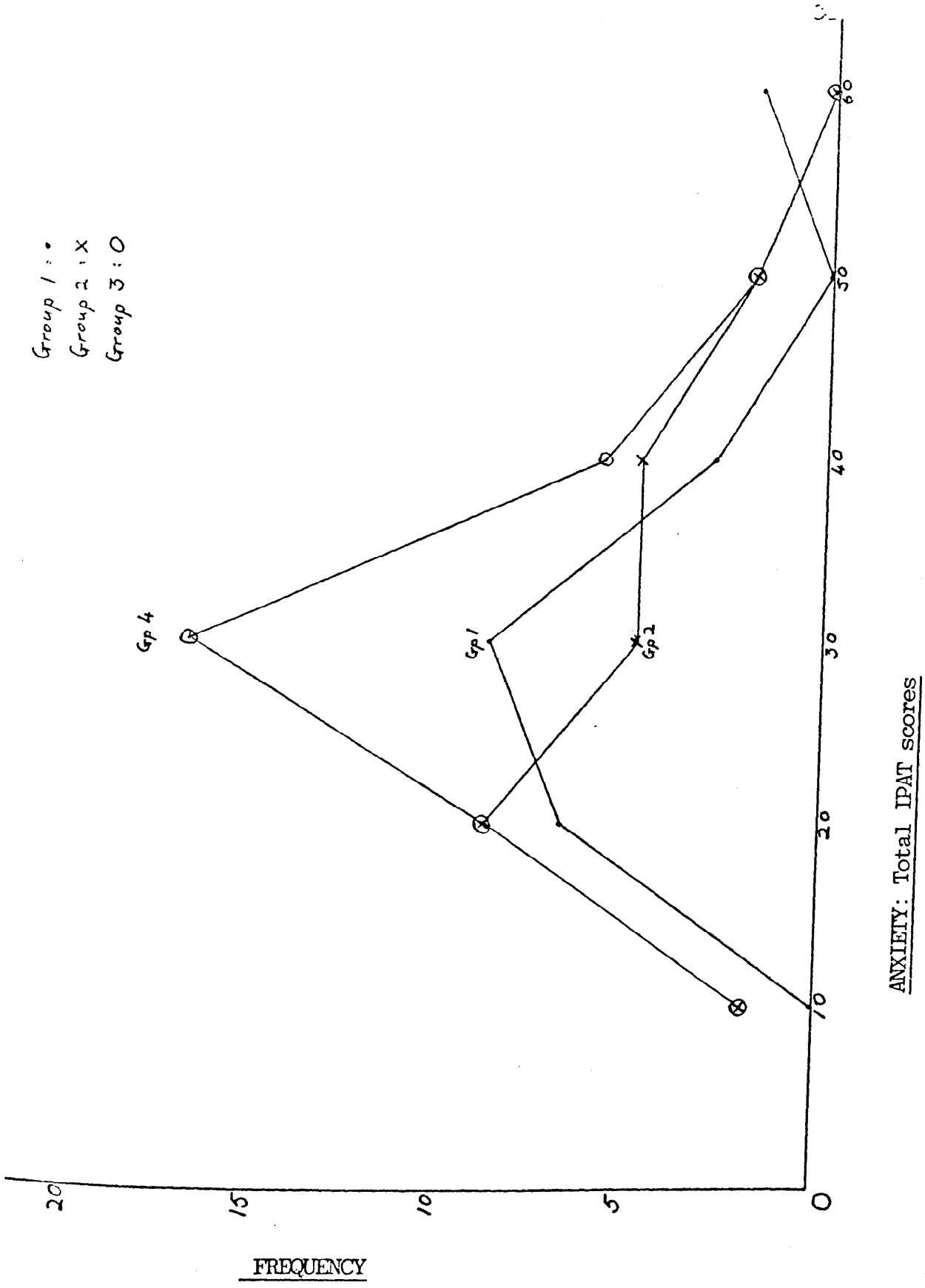

Figure 6.1 Total IPAT anxiety scores

Preliminary to analysis of variance, the variance of each group for each part-score was calculated, as shown in Table 6.11, and the Cochran test of homogeneity of variance was applied, as shown in Table 6.12 (Winer, 1971).

Table 6.11: Variances of IPAT Part Scores

	Covert Anxiety	Overt Anxiety	Q3	C	L	O	Q4
Group 1	32.24	61.60	14.08	3.36	3.25	11.41	23.33
Group 2	36.63	31.80	8.09	6.61	3.91	14.95	14.58
Group 4	16.27	29.62	9.07	3.77	3.28	5.94	11.24

Table 6.12: Cochran C Test of Homogeneity of Variance for IPAT Part Scores

Covert Anxiety	.4302 nonsignificant
Overt Anxiety	.5007 significant at the .05 level
Q3	.4507 nonsignificant
C	.4811 significant at the .05 level
L	.3745 nonsignificant
O	.4628 nonsignificant
Q4	.4747 nonsignificant

The required value for significance in each case is .4748.

The Cochran test indicates that the data do not fulfil the requirement of homogeneity of variance for the parametric analysis of variance (Ferguson, 1966). Thus the nonparametric Kruskal-Wallis one-way analysis of variance by ranks was applied to all IPAT part scores (Siegel, 1956), see Table 6.13. The formula used included the correction factor for ties (Siegel, 1956, pg. 188).

$$H = \frac{\frac{12}{N(N+1)} \sum \frac{R_j^2}{n_j} - 3(N+1)}{I - \frac{\Sigma T}{N^3-N}}$$

Table 6.13: Kruskal - Wallis One-Way Analysis of Variance for IPAT Part Scores

Factor	H	
Covert Anxiety	0.06	Nonsignificant
Overt Anxiety	0.21	Nonsignificant
Q3	1.05	Nonsignificant
C	0.74	Nonsignificant
L	0.36	Nonsignificant
O	2.45	Nonsignificant
Q4	0.25	Nonsignificant

The required value for significance at the .05 level is 5.99 in each case.

Thus there were no significant differences among Groups 1, 2 and 4 on any of the IPAT scores.

6.3 ANALYSIS OF THE QUESTIONNAIRE

6.31 Collapsing of Data

The questionnaire providing subsidiary data was analysed item by item. In order to comply with the requirements of the chi-squared test regarding expected frequencies in each cell (Siegel, 1956), it was necessary to collapse the data. Scoring categories were collapsed from four to two, and subject groupings from six to 3.

Scoring Categories

Excepting questions 6, 14 and 15 (section 2), each item offered a choice of four responses, a moderate and an extreme answer in each direction. The responses were collapsed into two categories by combining the moderate and extreme responses into one directed answer, in order to have a consistent, logical and objective method of collapsing. For example, question 1 of section 2:

For the baby, labour under epidural is

(a) very safe

(b) very dangerous

(c) risky

(d) fairly safe

Responses (a) and (d) were combined into a 'safe' answer, responses (b) and (c) into an 'unsafe' answer. In section 3, questions 6, 14 and 15 were collapsed as described later (see pgs. 96, 98).

Subject Groupings

These were collapsed from six (primi- and multiparae for each group) into three (Groups 1, 2 and 4), since differences between groups are more germane to the present study than differences based on parity.

However, the distributions of primiparae and multiparae in the groups could have influenced the analysis, and the data were still unsuitable (in terms of cell frequencies) for the partitioned chi-squared analysis suggested by Castellan (1965), which would have taken parity into account.

The factor of parity was dealt with by means of a preliminary analysis (see Appendix 1). For each item, the collapsed scoring system was maintained, but the subjects were divided into primiparae and multiparae,

irrespective of groups. Each item was analysed by means of the chi-squared test or Fisher exact probabilities test, as appropriate (see pg. 89). Where items showed no significant differences between primi- and multiparae, the analysis of the items for the three groups proceeded as usual, since parity would not affect the result.

Two items yielded significant differences at the .05 level, between primi- and multiparae, viz. Q12 and Q15 in section 2. Tables by Wilkinson (1950) indicate that in such a 'blind' analysis of items, the probability of obtaining by chance a significant difference at the .05 level on two items is greater than .3576 (and thus greater than .05) and the obtained significant differences due to parity are unlikely to reflect real differences. The factor of parity may be ignored in comparing Groups 1, 2 and 4.

However, as a precautionary measure, Groups 1, 2 and 4 were compared as usual on these three items and then reanalysed for primiparae and multiparae separately, to ensure that the factor of parity would not confound the comparison of the groups.

6.32 Criteria for Statistical Analysis

The following criteria were applied in the analysis:

1. Items with two degrees of freedom in which all the expected cell frequencies were five or more were analysed by means of a chi-squared test (Siegel, 1956).

2. Items involving two degrees of freedom in which no expected cell frequency was less than two were also analysed by means of the chi-squared test, since no alternative nonparametric technique is available, and Ferguson (1966) states that "an

expectation of not less than two in each cell will permit the estimation of roughly approximate probabilities" (pg. 207).

3. Items involving two degrees of freedom in which any expected cell frequency was less than two were further collapsed into contingency tables with one degree of freedom, and analysed according to criteria four and five. Such collapsing involved comparing the experimental group (Group 1) to Groups 2 and 4 combined, or comparing the control group (Group 4) to Groups 1 and 2 combined. Both alternatives were performed.

4. Items involving one degree of freedom in which all the expected cell frequencies were five or more were analysed by means of a chi-squared test which included Yates' correction for continuity (Ferguson, 1966).

5. Items involving one degree of freedom in which any expected cell frequency was less than five were analysed by means of the Fisher exact probabilities test (Siegel, 1956).

6. Items in which the observed frequency was exactly equal to the expected cell frequency for each cell were regarded as indicating no significant differences among the groups by inspection.

7. Some subjects did not respond to all items, or supplied their own response category to certain items. In such a case that subject was not included in the analysis of that item.

These omissions usually referred to questions regarding epidural anaesthesia, and involved a relatively small proportion of the

subjects. It was decided to omit them from the analysis rather than assign them to one or other category, since, in most instances, these subjects genuinely had no opinion on the matter, owing to insufficient information. Where subjects supplied their own responses, these were noted for inclusion in the discussion section.

6.33 Item by Item Analysis of the Questionnaire

1. The items are presented in an order which facilitates comparison of the subjects' opinions of normal labour and labour under epidural anaesthesia. The items were presented in a randomised order in the questionnaire (with the aid of random numbers tables) in order not to make subjects aware of this comparison.

2. Expected frequencies are given in brackets after observed frequencies.

3. The required chi-squared values for significance at the .05 level are 5.99 for items involving two degrees of freedom, and 3.84 for items involving one degree of freedom (Ferguson, 1966).

Section 2

Q1 Safety for the baby of labour under epidural block

	Group 1		Group 2		Group 4		Total
	o	e	o	e	o	e	
Safe	20	(20)	20	(20)	-	-	40
Unsafe	1	(1)	1	(1)	-	-	2

No significant difference by inspection

	Group 1	Group 2	Group 4	Total
Q3 Safety for the baby of normal labour				
Safe	17 (17.45)	20 (18.29)	27 (28.26)	64
Unsafe	4 (3.55)	2 (3.71)	7 (5.74)	13

χ^2 1.2 nonsignificant

Q6 Safety for the mother of labour under epidural anaesthesia				
Safe	19 (19.02)	20 (19.98)	- -	39
Unsafe	1 (0.98)	1 (1.02)	- -	2

Fisher exact probability 0.74 nonsignificant

Q10 Safety for the mother of normal labour				
Safe	20 (19.91)	21 (20.86)	32 (32.23)	73
Unsafe	1 (1.09)	1 (1.14)	2 (1.77)	4

(a) Collapsing to compare Group 1 with Groups 2 and 4 combined, a Fisher exact probability of 0.70 is obtained, which is not significant.

(b) Recollapsing to compare Groups 1 and 2 combined, with Group 4, a Fisher exact probability of 0.60 is obtained, which is not significant.

Q8 Painfulness of labour under epidural anaesthesia				
Less Painful	19(19)	22(22)	-	41
More Painful	0(0)	0(0)	-	0

No statistical comparison possible, since no subjects fall into the 'more painful' category.

	Group 1	Group 2	Group 4	Total
Q2 Painfulness of normal labour				
Less Painful	2(4.64)	6(4.86)	9(7.51)	17
More Painful	19(16.36)	16(17.14)	25(26.49)	60
χ^2 2.42 nonsignificant				
Q5 Painfulness of administration of epidural anaesthesia				
Less Painful	16(13.60)	12(14.40)	-	28
More Painful	1(3.40)	6(3.60)	-	7
Fisher exact probability .05 significant at the .05 level				
Q16 The experience of normal labour				
Good	13(17.37)	21(19.11)	32(29.53)	66
Bad	7(2.63)	1(2.89)	2(4.47)	10
χ^2 11.35 significant at the .05 level				
Q4 The experience of labour under epidural anaesthesia				
Good	20(19.02)	19(19.98)	-	39
Bad	0(0.98)	2(1.02)	-	2
Fisher exact probability 0.26 nonsignificant				
Q12 The image of the woman choosing routine epidural anaesthesia				
Favourable	17(15.69)	17(18.31)	-	34
Unfavourable	1(2.31)	4(2.69)	-	5
(a) Fisher exact probability .22 nonsignificant				

(b) Re-analysis for primiparae only, Fisher exact probability .65 nonsignificant

(c) Re-analysis for multiparae only, Fisher exact probability .46 nonsignificant

---

Q9 Cost of the epidural anaesthetic				
Inexpensive	2(1.03)	0(0.97)	-	2
Expensive	17(17.97)	18(17.03)	-	35

Fisher exact probability 0.26 nonsignificant

Q15 The necessity of suffering normal labour when epidural anaesthesia is available				
Positive	0(6.83)	13(6.18)	-	13
Negative	21(14.18)	6(12.83)	-	27

(a) χ^2 corrected 18.28 significant at the .05 level

(b) Re-analysis for primiparae only, Fisher exact probability .006 significant at the .05 level.

(c) Re-analysis for multiparae only, Fisher exact probability .003 significant at the .05 level

---

Q7 The influence of the mother's experience of labour on her baby				
Much	18(13.64)	11(14.29)	21(22.08)	50
Little	3(7.36)	11(7.71)	13(11.92)	27

χ^2 6.28 significant at the .05 level

	Group 1	Group 2	Group 4	Total
Q13 The influence of the mother's experience of labour on her life				
Much	18(16.10)	16(17.71)	28(28.18)	62
Little	2(3.90)	6(4.29)	7(6.82)	15

χ^2 2.0 nonsignificant

Q11 Pain tolerance				
Low	6(1.88)	1(1.97)	0(3.14)	7
High	15(19.12)	21(20.03)	35(31.86)	71

(a) Collapsing to compare Group 1 with Groups 2 and 4, Fisher exact probability .001 significant at the .05 level

(b) Collapsing to compare Groups 1 and 2 with Group 4, Fisher exact probability .012, significant at the .05 level.

Comparing the groups two at a time:

1. For Groups 1 and 2, Fisher exact probability .04 significant at the .05 level
2. For Groups 1 and 4, Fisher exact probability .001 significant at the .05 level
3. For Groups 2 and 4, Fisher exact probability .39 nonsignificant

---

Q14 Ability to cope with normal labour				
Good	11(17.77)	22(18.62)	33(29.62)	66
Poor	10(3.23)	0(3.38)	2(5.38)	12

χ^2 23.27 significant at the .05 level

	Group 1	Group 2	Group 4	Total
Section 3				
Q1 Headaches				
Infrequent	16(14.54)	13(15.23)	25(24.23)	54
Frequent	5(6.46)	9(6.77)	10(10.77)	24
χ^2 1.61 nonsignificant				
Q2 Constipation and Diarrhea				
Infrequent	10(10.77)	9(11.28)	21(17.95)	40
Frequent	11(10.23)	13(10.72)	14(17.05)	38
χ^2 2.12 nonsignificant				
Q3 Dizziness or fainting spells				
Infrequent	17(16.69)	17(17.49)	28(27.82)	62
Frequent	4(4.31)	5(4.51)	7(7.18)	16
χ^2 .09 nonsignificant				
Q4 General Health				
Good	19(20.19)	22(21.15)	34(33.65)	75
Poor	2(0.81)	0(0.85)	1(1.35)	3
(a) Collapsing to compare Group 1 with Groups 2 and 4, Fisher exact probability .17 nonsignificant				
(b) Collapsing to compare Groups 1 and 2 with Group 4, Fisher exact probability .58 nonsignificant				

	Group 1	Group 2	Group 4	Total
Q5 Palpitations				
Infrequent	16(15.62)	16(16.36)	26(26.03)	58
Frequent	5(5.38)	6(5.64)	9(8.97)	20

χ^2 .05 nonsignificant

Q6 Weight gain

Expected weight gain for physiological changes during pregnancy is about seventeen pounds. Doctors regard a normal weight gain as up to twenty-five pounds (Alexander and Downs, 1953). The scoring categories for this item are collapsed into normal (up to twenty-five pounds) and excessive (over twenty-five pounds).

Normal	10(12.12)	13(13.27)	22(19.62)	45
Excessive	11(8.88)	10(9.73)	12(14.38)	33

χ^2 4.48 nonsignificant

Q7 Perception of foetal movements

Favourable	18(17.50)	21(18.33)	26(29.17)	65
Unfavourable	3(3.50)	1(3.67)	9(5.83)	13

χ^2 4.48 nonsignificant

Q8 Nausea

Infrequent	19(14.81)	12(15.51)	24(24.68)	55
Frequent	2(6.19)	10(6.49)	11(10.32)	23

χ^2 6.77 significant at the .05 level

	Group 1	Group 2	Group 4	Total
Q9 Tiredness				
Infrequent	4(2.69)	2(2.82)	4(4.49)	10
Frequent	17(18.31)	20(19.18)	31(30.51)	68
χ^2 1.06 nonsignificant				
Q10 Sleeping problems				
Infrequent	14(15.88)	19(16.64)	26(26.47)	59
Frequent	7(5.12)	3(5.36)	9(8.53)	19
χ^2 2.32 nonsignificant				
Q11 Perception of pregnant women				
Favourable	11(14.81)	15(15.51)	29(24.68)	55
Unfavourable	10(6.19)	7(6.49)	6(10.32)	23
χ^2 5.95 nonsignificant				
Q12 Emotional state during pregnancy				
Less anxious	8(9.42)	9(9.87)	18(15.71)	35
More anxious	13(11.58)	13(12.13)	17(19.29)	43
χ^2 0.71 nonsignificant				
Q13 Emotional state normally				
Less anxious	12(11.85)	11(12.41)	21(19.74)	44
More anxious	9(9.15)	11(9.59)	14(15.26)	34
χ^2 0.55 nonsignificant				

Questions 14 and 15

These items were constructed differently from the majority of items, which gave subjects a choice between a moderate and extreme answer in each direction. For questions 14 and 15 subjects were given a choice between four alternative responses. The scoring categories were collapsed in the following manner, which was felt to be most logical.

Q14 The present study investigates the anxiety - reducing effect of the offer of routine epidural anaesthesia on the pregnant woman. Thus the scoring categories were collapsed into response c ("it made me generally less anxious") and 'other responses' (indicating no effect, increased anxiety or other responses).

Q15 No subjects in either group fell into category d. Since all subjects fell into categories a, b, and c and no further collapsing would be needed to apply a chi-squared analysis to the data if category d were omitted, this was done. In this way no meaningful data was lost by combining scoring categories in an arbitrary manner, as no clear logical combination was apparent.

	Group 1	Group 2	Group 4	Total
Q14 Effect of the offer of routine epidural anaesthesia on emotional state during pregnancy				
Lessened anxiety	7(3.5)	0(3.5)	-	7
Other	14(17.5)	21(17.5)	-	35

Fisher exact probability .004 significant at the .05 level

	Group 1	Group 2	Group 4	Total
Q15 Opinion on the offer of routine epidural anaesthesia				
a	2(3.00)	4(2.86)	-	6
b	14(12.50)	11(11.90)	-	25
c	5(5.50)	6(5.24)	-	11
χ^2 1.19 nonsignificant				

Tables by Wilkinson (1950) indicate that the probability, in such a 'blind' analysis, of obtaining seven significant items at the .05 level, by chance alone, is less than .05. Thus the obtained significant differences amongst Groups 1, 2 and 4 may be regarded as reflecting acceptably significant differences among the groups.

Section 4

Of the forty-three subjects in Groups 1 and 2, only six completed section 4 adequately. Many subjects did not respond to this section at all, indicated mostly 'don't know' responses, responded to only a few items or filled in their own comments. It was thus apparent that this section was poorly constructed and could yield little information. It was therefore not analysed further.

6.34 Summary of Results

Section 2

Question	Result
1.	Results unsuitable for analysis
3.	Chi-squared 1.2 nonsignificant
6.	Fisher probability .74 nonsignificant

Question	Result
10.	(a) Comparing Group 1 with Groups 2 and 4, Fisher probability .70 nonsignificant
	(b) Comparing Group 4 with Groups 1 and 2, Fisher probability .60 nonsignificant
8.	No significant difference by inspection
2.	Chi-squared 2.42 nonsignificant
5.	Fisher probability .05, significant at the .05 level
4.	Fisher probability .26 nonsignificant
16.	Chi-squared 11.35 significant at the .05 level
12.	Fisher probability .22 nonsignificant
	(a) For primiparae only, Fisher probability .65 nonsignificant
	(b) For multiparae only, Fisher probability .46 nonsignificant
9.	Fisher probability .26 nonsignificant
15.	Chi-squared (corrected) 18.28, significant at the .05 level.
	(a) For primiparae only, Fisher probability .006, significant at the .05 level.
	(b) For multiparae only, Fisher probability .003, significant at the .05 level.
7.	Chi-squared 6.28, significant at the .05 level
13.	Chi-squared 2.00, nonsignificant
11.	(a) Comparing Group 1 with Groups 2 and 4, Fisher probability .001, significant at the .05 level.
	(b) Comparing Group 4 with Groups 1 and 2, Fisher probability .012, significant at the .05 level
14.	Chi-squared 23.27, significant at the .05 level.

Section 3

1. Chi-squared 1.61 nonsignificant
2. Chi-squared 2.12 nonsignificant
3. Chi-squared 0.09 nonsignificant
4. (a) Comparing Group 1 with Groups 2 and 4, Fisher probability .17, nonsignificant

   (b) Comparing Group 4 with Groups 1 and 2, Fisher probability .58, nonsignificant
5. Chi-squared .05 nonsignificant
6. Chi-squared 4.48 nonsignificant
7. Chi-squared 4.48 nonsignificant
8. Chi-squared 6.77, significant at the .05 level
9. Chi-squared 1.06 nonsignificant
10. Chi-squared 2.32 nonsignificant
11. Chi-squared 5.95 nonsignificant
12. Chi-squared 0.71 nonsignificant
13. Chi-squared 0.55 nonsignificant
14. Fisher probability 0.004, significant at the .05 level.
15. Chi-squared 1.19 nonsignificant

6.35 Additional Analysis of Questionnaire Items

For reasons to be discussed in Chapter Seven the following additional analyses were performed. These are presented in the order in which they are referred to in Chapter Seven.

1. Q14 (section 3) Effect of offer of routine epidural block on emotional state in pregnancy

(a)

	Primiparae	Multiparae	Total
no effect	13(9.00)	14(18.00)	27
other response	1(5.00)	14(10.00)	15

χ^2 corrected = 5.72 significant .05 level

(b) Primiparae only

	Group 1	Group 2	Total
no effect	3(3.71)	10(9.29)	13
other response	1(0.29)	0(0.71)	1

Fisher exact probability = .29 nonsignificant

(c) Multiparae only

	Group 1	Group 2	Total
no effect	5(8.50)	9(5.50)	14
other	12(8.50)	2(5.50)	14

χ^2 corrected = 5.39 significant at the .05 level

2. Q16 (section 2) The experience of normal labour

	Group 1	Group 2	Group 4	Total
Fulfilling	5(12.11)	18(13.32)	23(20.58)	46
Bearable	8(5.26)	3(5.79)	9(8.95)	20
Unpleasant	4(1.84)	1(2.03)	2(3.13)	7
Unbearable	3(0.79)	0(0.87)	0(1.34)	3
(a) 'Good' responses				
Fulfilling	5(9.06)	18(14.64)	23(22.30)	46
Bearable	8(3.94)	3(6.36)	9(9.70)	20

χ^2 = 8.62 significant at the .05 level

3. Q14 (section 3) Effect of the offer of routine epidural block on emotional state in pregnancy

(a)	Primiparae	Multiparae	Total
more anxious	0(1)	3(2)	3
other response	14(13)	25(26)	39

Fisher exact probability .29 nonsignificant

(b)	Group 1	Group 2	Total
more anxious	3(1.50)	0(1.50)	3
other response	18(19.50)	21(19.50)	39

Fisher exact probability .12 nonsignificant

4. When the final decision on routine epidural block was taken

(a)	Primiparae	Multiparae	Total
before six months	10(10)	18(18)	28
after six months	5(5)	9(9)	14

no significant difference by inspection.

(b)	Group 1	Group 2	Total
before six months	0(14)	19(14)	28
after six months	12(7)	2(7)	14

χ^2 corrected = 8.68 significant .05 level

CHAPTER SEVEN: DISCUSSION

7.1 INTRODUCTION

The major hypothesis of this study, that women accepting the offer of routine epidural anaesthesia, those declining it and those not offered, would differ in anxiety level during pregnancy, was not confirmed. No significant differences among the groups in total IPAT anxiety scores were found, nor in any of the IPAT part-scores.

The acceptability of this finding, and an interpretation thereof, will be considered in the present chapter, and the implications will be discussed in Chapter Eight.

7.2 ACCEPTABILITY OF FINDINGS

7.21 Subjects and Procedure

All patients of the five participating doctors who qualified for inclusion in the study were tested over a period of approximately a year. Subjects were tested consecutively as they became available, and are likely to be a representative cross-section of these doctors' patients.

The doctors were all well-known specialist obstetrician/gynaecologists in Johannesburg and there is no reason to suppose that their patients are not comparable, particularly since certain variables (e.g., socio-economic status) were controlled. It is, however, possible that particular ethnic or cultural groups frequent different doctors. This cultural factor is important, even among women of the same age, race, etc. since cultural values pertaining to childbirth affect the individual's perceptions and behaviour (Mead, 1949)

Since the sample in this study was relatively homogeneous, one must be aware that the findings are of limited generalizability, and are applicable to a middle-to-upper class group of relatively highly-educated white women.

Bearing this in mind, there seems no reason to suppose that the obtained findings are inaccurate due to some systematic error in subject selection, and the results are probably a fairly accurate reflection of this particular sub-group of women.

In addition, procedure was standardized.

All subjects were tested in the final stages of pregnancy (within three weeks of due date), in their doctor's waiting rooms, at a scheduled appointment and without prior notice. Each subject completed the IPAT form before the questionnaire.

7.22 Control of Variables

The experimental design included control of variables reported in the literature which may affect subjects' anxiety scores. Age, race, attendance at antenatal classes, educational standard, socio-economic status, marital status, number of children and fluency in English were similar for all groups. The factor of parity was included in the analysis of the results.

However, other factors were not controlled for, nor examined in the questionnaire. These include religion, whether the pregnancy was planned or wanted, relationship with husband and relationship with mother.

Subjects were all attending specialist obstetrician/gynaecologists who provided a continuing supportive relationship throughout the pregnancy, thus providing at least minimal emotional support during gestation for all subjects. Nevertheless, the amount of support a woman received from her husband or mother may have affected the results obtained.

Knowledge of other aspects of the husband-wife relationship (e.g., sexual), or mother-woman relationship (e.g., developmental) may be of importance in assessing the findings, although no prior reason exists for supposing the groups differed in these respects, since selection of subjects was sequential and not according to any specific criteria.

In general, certain aspects of the subjects' environment could not be controlled in the present study. These are the 'unique factors' discussed in Chapter Two. The major relevant variables were controlled as far as possible in selection of subjects, procedures and statistical analysis. However, the possibility of an unknown factor influencing the results must be borne in mind.

7.23 Assumptions

1. It was assumed that the doctors offered all subjects in Groups 1 and 2 routine epidural block. This was confirmed by both doctors and subjects in these groups.

2. A further assumption was that subjects who were offered epidural block understood that it implied relatively painless labour. This was confirmed by the subjects' responses to Q8 (section 2) of the questionnaire. All subjects, except three, responded that labour under epidural block was painless. Two subjects

refused to answer any questions on labour under epidural block on the grounds that they did not know for sure, never having experienced it. One responded that it was 'uncomfortable'; this category was later amalgamated with 'painless' into 'less painful'. In comparison, normal labour was rated 'more painful' by thirty-five subjects and 'less painful' by eight subjects.

Thus the practical assumptions of the study were confirmed.

7.24 Experimenter Bias

There is obviously the danger of experimenter bias in gathering and processing data. Tests were administered by the author or the doctor's receptionists, who were told only that the study concerned the attitudes, feelings and experiences of pregnant women and (for subjects in Groups 1 and 2) their ideas on epidural block. The author took the same approach with subjects and did not systematically test any particular group of subjects, but a proportion of subjects from all groups. It is, therefore, unlikely that administration of the IPAT scale or questionnaire was subject to experimenter bias.

Scoring of the IPAT scale and questionnaire was done by the author, but according to strictly pre-arranged criteria. The IPAT scale was scored by means of the supplied scoring key, and is completely objective and standardized. A scoring system for the questionnaire was worked out in advance of its administration to any subjects, and was strictly adhered to. The interview was held after completion of the forms, was not standard for all subjects, and interview data played no part in the

statistical analysis. Any relevant interview data were regarded as additional explanatory comments only.

Thus the objectivity of scoring procedures seems acceptable, and is unlikely to reflect experimenter bias, particularly for the main results (IPAT scale).

When it became necessary to collapse the scoring categories for the questionnaire data, this was done in the most logical way by combining the moderate and extreme answer in each direction, to give one response in each direction, and was applied consistently to each relevant item. Where this was irrelevant due to the structure of a few items, the most logical collapsing of scoring categories was applied and alternate recollapsing of the data was undertaken as a precautionary measure where necessary.

Statistical procedures were appropriate to the data according to recognized authorities, and alteration in statistical procedures was according to the criteria provided by these authorities (see page 88).

7.25 Summary

Thus the findings appear to be an acceptably accurate reflection of the sample, but are generalizable only to a similarly limited population.

7.3 INTERPRETATION OF MAIN RESULTS

7.31 Introduction

Before interpreting the results in terms of the theory provided

in Chapters Two and Three, it is necessary to examine the theoretical foundation of the proposed hypothesis.

A fundamental assumption in the theoretical development of the major hypothesis was that the offer of routine epidural block is an important factor to pregnant women. An important factor was defined as a factor that most pregnant women perceived as highly significant during pregnancy, or one that affected many parts of the system simultaneously. This general assumption has not been supported. It has become apparent that the offer of routine epidural block is an important factor to some pregnant women, but to others it is of minor importance. This conclusion is based on a subsidiary re-analysis of Q14 (section 3) of the questionnaire regarding the effect of the offer of routine epidural anaesthesia on emotional state during pregnancy.

The scoring categories were collapsed into 'no effect' and 'other response' (see page 101, no. 1). A significant difference between primi- and multiparae was found, with almost all primiparae indicating no effect.

Therefore, comparison of the groups was performed separately for primi- and multiparae.

No significant difference between groups was found for primiparae, but a significant difference was found for multiparae.

Thus it appears that the offer of epidural anaesthesia was not a major factor for the primiparae in this sample, but it was for the multiparae, particularly for those who accepted the offer. Interpretation of this finding is discussed more fully later, but its major importance

in contributing to an understanding of the main results of this study is that the assumption that the offer of routine epidural block is an important factor to pregnant women is too simplistic, and that other factors may be more important to different women.

7.32 Main Results

At first glance it might be reasonable to conclude that the major hypothesis is unfounded, and that the offer of routine epidural block plays no part in alleviating anxiety during pregnancy, since the anxiety scores of the groups do not differ significantly. However, this is countered by the fact that a significant proportion (one-third) of subjects planning to have their babies under epidural block do report that the offer lessened their anxiety level during pregnancy (Q14, section 3 of questionnaire).

McDonald (1968), after reviewing the literature, concluded that "self report of anxiety is, to date, the most discriminating behavioural measure for presaging complications." Since the effect of the offer of routine epidural block on anxiety level is being studied in terms of the literature relating anxiety level to complications, this self-reported reduction in anxiety level for some Group 1 subjects must be given serious consideration. The inconsistency between the self-reports of these subjects and the main finding of this study implies that the issue is more complex that at first conceived.

One must also bear in mind that an additional source of anxiety may exist for subjects accepting routine epidural block. This is that they may ultimately be unable to have the anaesthetic for practical reasons,

such as, e.g., going into labour spontaneously in the middle of the night when it may take some time for the anaesthetist to be summoned, having a relatively quick labour which will be over before the epidural block can be administered and take effect, etc. In short, the woman planning to undergo childbirth with epidural block is relying on someone other than herself, and may fear being let down for unavoidable practical reasons. If this should occur, one might imagine that normal labour would be more traumatic for such a woman, who has not prepared herself psychologically for the event.

Unfortunately, the questionnaire did not deal with this factor, and no subjects commented upon it spontaneously, but it is a possibility that must be borne in mind and may form a part of the interpretation of the main results.

The hypothesized link between routine epidural block and anxiety level was based on the literature connecting anxiety level during pregnancy to paranatal complications, and on a theoretical proposal of the effect of routine epidural block on anxiety level. The greater complexity of the issue probably lies in other effects of the offer of routine epidural block on the pregnant woman.

7.33 Expansion of Theory

In proposing a more complex interpretation of the results, psychological theories of needs will be incorporated into the theory, and cognitive aspects of the theory expanded.

Theories of needs had previously been considered for inclusion in the study but had been omitted due to their apparent irrelevance to the issues.

The basic issue was whether or not offering routine epidural block to pregnant women would reduce anxiety level during pregnancy. This was a valid concern in the light of the literature linking anxiety level during pregnancy to paranatal complications. The factor of needs appeared irrelevant to the main thrust of the research, since the literature dealt with anxiety level irrespective of other considerations such as needs. In other words, need level appeared to be a minor factor compared to anxiety level, particularly since anxiety theories indicated that anxiety reduction is a fundamental and pervasive human motivation. And, in general, most theories of motivation stress tension relief in one or another form (pain reduction, hunger reduction, anxiety reduction). In addition, since pregnancy is associated with increased anxiety level, anxiety reduction seemed even more likely to be a prime motivator during pregnancy.

However, the issue of routine epidural block may be better and more fully explained in the light of other motivational theories, particularly by considering the motivation to self-actualization, which is regarded by contemporary existentialist and humanistic psychologists as equally fundamental and pervasive.

Since subjects in the present study were offered routine epidural block and a substantial proportion declined the offer, it is apparent that the anxiety-reducing motivation alone cannot best account for the results, particularly since no differences in the assessments of painfulness and safety of normal labour were found among the groups.

Since the most fruitful interpretation of the findings resulted from a combination of the anxiety-reduction and growth-motivation theories,

it was decided to expand the theoretical framework of the present study, to provide a less one-sided orientation. That this became necessary, in fact, provides support for the concept of self-actualization and its relevance to an understanding of human motivation. This is particularly interesting in that pregnant women face imminent life and possibly death, the fundamental existentialist concerns, and it is thus not surprising that existentialist theory contributes to an understanding of the present issues.

The role of cognitive consistency theory was recognised and alluded to in the initial development of the theory (see pages 40, 51). However it plays a larger part in the interpretation of the findings than anticipated. It was thus decided to expand this aspect of the theory in the discussion of results, by providing a more detailed review of cognitive theories and their relevance to the present study. That this became necessary indicates that the link between anxiety and paranatal complications involves cognitive mediation at some point, and that the study of the cognitive aspects of pregnancy may be a fruitful field for further research.

7.34 Difference in Needs

The systems view of pregnancy proposed in Chapter Two provides a picture of the pregnant woman undergoing a fundamental psychological reorganization in which change is inevitable. Her particularly vulnerable psychological system may be strained beyond its adaptive capacity, leading to emotional disorder, or it may successfully integrate the many changes of pregnancy, leading to a more flexible and mature mode of coping with the world.

It was hypothesized that the offer of routine epidural block could provide the pregnant woman with a means of reducing many of the anxiety-provoking aspects of imminent childbirth, thus lessening the strain on the system. This proposal is logically tenable on the assumption that the woman needs to alleviate anxiety. Theory and empirical studies confirm that people are motivated to reduce their general anxiety level in the face of threat.

However, this assumption must be more fully investigated since the hypothesis based upon it has been disconfirmed. It is necessary to investigate whether other needs in the pregnant woman may supersede the need to alleviate anxiety. The behaviour and questionnaire responses of a sizeable number of women accepting routine epidural block do confirm the line of reasoning on which this study was based. That is, they accepted the offer, significantly more Group 1 subjects said it reduced their anxiety level during pregnancy, perceived the experience of normal childbirth as threatening (Q16, section 2), felt it was unnecessary to suffer labour if routine epidural block was available (Q15, section 2), perceived their pain tolerance as low (Q11, section 2) and felt unable to cope with normal childbirth (Q14, section 2).

This indicates that it is not necessary to reject the basic line of reasoning that pregnant women perceive labour as anxiety provoking, are anxious about their ability to cope with it, choose to accept routine epidural block as a means of reducing this anxiety, which they are motivated to do. It rather implies the need to examine more closely those who decline the offer, and where they depart from this sequence.

A combination of four factors is suggestive; that women in Group 2

declined the offer, more of them perceived normal childbirth as fulfilling, felt they could cope with it and reported no effect of the offer of routine epidural block on their emotional state during pregnancy. The fact that they declined the offer and reported it not affecting their emotional state during pregnancy will be examined further. But, returning to the question of needs, the perception of labour as fulfilling, and of oneself as being able to cope with it, clearly suggests different needs between subjects in Groups 1 and 2.

In terms of the systems view of pregnancy, one may readily conceive that the pregnant woman whose system is being strained by the adaptive demands of pregnancy is strongly motivated to ease this strain and maintain the integrity of the system. However, the woman who is more easily integrating these demands into her more flexible system is not experiencing the fundamental threat of disintegration of the system, and at this point one must consider what her primary motivation may be. A framework in which to do this is provided by the motivational theory of Abraham Maslow (1970).

7.35 Maslow's Theory of Needs

Maslow (1970) proposed a hierarchy of basic human needs. The physiological needs (e.g., food, sex) are the most fundamental, and are the needs most frequently dealt with in motivation theory and human and animal experiments. Maslow's theory is based on the idea that, when one level of needs is sated, other higher levels of needs emerge and press for satisfaction. Thus, once physiological needs are met, the safety needs become prepotent.

Safety needs encompass all the needs for physical safety, security, structure, freedom from chaos and anxiety. Thereafter what he termed the belongingness and love needs emerge; these are the motivations to social and interpersonal relationships. Esteem needs are the next level in the hierarchy, including the desire to gain the respect of others as well as to have a stable, relatively high evaluation of oneself. Maslow's highest category of basic needs is termed self-actualization, which he conceives of as the need to fulfil one's potential, to become what one is capable of becoming. The term was first coined by Goldstein (1939) and has proliferated in humanistic and existential psychology (Maslow, 1970; Rogers, 1951; May, 1961).

In considering the general conception of anxiety presented in Chapter Three, it is apparent that the theories of anxiety refer to lower need levels. They are based on the physiological need to avoid pain and are developed on the needs for safety, love and esteem. The need for self-actualization which motivates people to reach out for new and challenging experiences, to grow, is not included.

Maslow regards this need as existing to some extent in each individual, no matter which need level is prepotent at that time for that person. And it is this motivation to growth that in fact allows the individual to develop from one level in the hierarchy to the next. A lower need is not completely satiated before the next, higher one becomes prepotent, it is only largely fulfilled.

Considering anxiety again, the pregnant woman whose physiological, love and esteem needs are largely fulfilled, is motivated primarily by the self-actualization need in Maslow's view. Thus even when these lower

needs are threatened, as in pregnancy, the relatively secure woman will be able to cope with the anxiety generated and still be motivated by the prepotent drive to self-actualization.

In terms of our systems theory of pregnancy, the woman whose system is relatively flexible and is not being dangerously strained by the adaptive demands of pregnancy can cope with her heightened anxiety level during gestation and behave in a way that she perceives as fulfilling her need for personal growth.

Thus the primary motivational difference to be considered among the subjects in the present study is between 'growth seekers', as Maslow terms people with prepotent self-actualization needs, and 'security seekers', as he terms those with any of the lower needs prepotent. In terms of our framework, these would correspond to women perceiving no catastrophic threat to their system and those who are dangerously threatened.

7.36 Maslow's Theory and Data from the Present Study

In the present study this growth-oriented behaviour would consist of declining the offer of routine epidural block if the woman regards the experience of normal childbirth as self-actualizing.

In analysing subjects' responses to Q4 and Q16 (section 2) of the questionnaire, no difference is found in the subjects' evaluation of the experience of labour under epidural anaesthesia, but a significant difference is found among the groups in the evaluation of normal labour. More subjects accepting routine epidural block regard normal labour as unpleasant or unbearable, while all subjects but one who declined the

offer rated normal labour as bearable or fulfilling. Unfortunately, responses had to be collapsed into two categories rather than the four offered, due to statistical demands, but one may examine the raw data obtained (see pg. 102, number 2).

Considering only those subjects giving a 'good' response, ('fulfilling' or 'bearable') one may look at the differences between subjects responding that normal labour is fulfilling, and those regarding it as bearable (see pg. 102, number 2(a). Subjects responding 'fulfilling' may be regarded as those to whom the experience represents an opportunity for self-actualization as discussed above. Those responding 'bearable' may be regarded as perceiving labour in terms of lower needs, but not as a major threat to those needs. The theory must account for both types of responses.

Thus, even in analysing only those responses classed as 'good' in the statistical analysis, a significant difference is found among the groups between subjects regarding labour as a potentially self-actualizing experience and those simply regarding it as a lesser threat to the system, with which they can cope.

Inspecting item 2, pg. 102, it is apparent that the major differences are between subjects accepting and declining routine epidural block, since the expected frequencies differ a relatively large amount from the observed frequencies, whereas for the control group the expected and observed frequencies are fairly close.

Considering subjects in the 'bad' response category, one notes that no subjects in Groups 2 and 4 responded that normal labour was 'unbearable',

the extreme response, while three subjects in Group 1 did so.

One may conclude that these differences in perception of normal labour support the theory of a difference in need level among subjects accepting and declining routine epidural block. The majority of subjects not offered epidural block see normal childbirth as potentially fulfilling, while the remainder see it as a threatening experience but not a catastrophic one. A similar pattern is found among subjects declining the offer. However, few subjects accepting the offer describe normal labour as fulfilling; the majority regard it as threatening, and some regard it as unbearable, i.e., a potentially catastrophic experience.

To summarize this far, interpretation of the main result is aided by Maslow's theory of needs. The anxiety theory on which the hypothesis was based concerned security-seeking motivation, while the concept of growth-seeking motivation helps to explain why the motivational foundations of the hypothesis were partly supported and partly invalidated.

The concept of self-actualization throws light on the motivation to decline the offer of routine epidural block for some of the women, while the anxiety theory explains the motivation of some subjects to accept it. However, the interpretation of the main results must also take account of the less extreme cases, where the women's responses do not follow the consistent patterns suggested so far, and must also account for the final result of no significant differences in anxiety level among the groups when tested.

To further investigate the role of needs in this interpretation further features of the questionnaire and interview data are of some significance.

7.37 Needs in Accepting or Declining Routine Epidural Anaesthesia

Continuing to apply Maslow's theory, women with physiological needs prepotent would accept routine epidural block to avoid the overwhelming physiological stimulation of childbirth. Those with prepotent safety needs would be motivated towards routine epidural block to avoid the chaotic experience of labour by assuming some control over the situation. However, it is unlikely that most women would be operating on a prepotent physiological or safety level, but rather at the levels of love and esteem needs. At this point the attitudes of husbands, mothers and other important people towards routine epidural block would play a significant role, as well as the woman's self-image, and her image of women accepting the anaesthetic.

Remembering also that lower physiological and safety needs are in fact threatened by childbirth, as discussed, and that lower needs still operate even when higher needs are prepotent, it is likely that women at this level will experience ambivalent motivations. The strength of these conflicting drives will depend largely on the woman's perceptions of the reactions of important people in her life, her own self-image and the extent to which she perceives normal childbirth threatening physiological and safety needs.

Houston et al. (1972) support this view by noting that the extent to which a woman is apprehensive about physical injury is different from her beliefs about the extent of the physical danger. That is, her feelings are not solely determined by her cognitions regarding physical danger. Thus it is suggested that ambivalent feelings result from many different needs pressing for satisfaction and the woman's perceptions of many important environmental factors.

For instance, if she perceives normal childbirth as very threatening physiologically, perceives herself as unlikely to cope (threat to safety and self-esteem) and her husband as disapproving of routine epidural block (threat to esteem need) she may choose to accept the offer and attempt in other ways to retain her husband's respect by, for instance, trying to persuade him to change his opinion. Alternately, if childbirth is perceived as less threatening, she may attend antenatal classes in an effort to perceive herself as more likely to be able to cope, decline epidural block and thus be able to fulfil her prepotent needs for self-esteem and her husband's respect by perceiving herself as brave and being reinforced in this by her husband.

It is apparent that there are many different ways for the woman to resolve the conflicting demands of her needs. Her final behaviour and attitude will depend on her unique circumstances, the extent to which each of her needs in the hierarchy presses for satisfaction and the extent to which each is threatened in the situation.

In considering self-actualization needs, Maslow proposed that this drive to growth is present to some extent in each person. Thus even a woman who perceives normal childbirth as a potentially self-actualizing experience but is extremely threatened by the pain and feels she is unlikely to cope (i.e., for her, it is unlikely to be a self-actualizing experience) may accept routine epidural block. Alternately, a woman perceiving normal labour as threatening who feels she will be able to cope may decline the offer.

To sum up, the importance of considering the woman's need system in assessing the effect of offering routine epidural block is apparent,

and the main results of the present study may be more meaningfully interpreted with the aid of Maslow's hierarchical theory of needs. The factors of the pregnant woman's perceptions of labour with or without the epidural block, her self-image and her prepotent needs are dealt with in the questionnaire, and fuller discussion of the relative importance and interplay of these factors will be found in discussion of the questionnaire results. The theoretical discussion so far proposes the view that women with prepotent physiological and safety needs would accept routine epidural block, the 'growth-seekers' would decline the anaesthetic and that most women would be operating on the intermediate prepotent love and esteem need levels, and are likely to experience ambivalence in considering the offer.

7.38 Integration with the Systems View of the Psychology of Pregnancy

Combining this more complex picture of the pregnant woman who is offered routine epidural block with the systems view of the psychology of pregnancy, it is clear that once the decision is made, it too becomes integrated into the system. The theory being developed is thus that *a priori* differences in needs, attitudes and environment exist among the pregnant women being studied, and that these influence the decision on routine epidural block. This decision in turn affects the woman's subsequent behaviour, attitudes and experiences, due to the interdependence of components in a system.

In considering women with prepotent physiological and safety needs, the picture that emerges is consistent with the clinical impressions of the doctors offering routine epidural anaesthesia. That is, such women accept the offer and are dramatically relieved by it. (In order to test

this hypothesis more adequately than was done in the present study, an assessment of need and anxiety level before and after offering routine epidural block is necessary.)

In considering the women with other needs prepotent, ambivalence is indicated by the theory. Once the decision is made, theories of cognitive change are relevant in understanding the subsequent changes in the system.

7.39 Cognitive Change

Krech, Crutchfield and Ballachey (1962) give an overview of theories of cognition, which fits in with the systems view of pregnancy. Key concepts are as follows:

1. The cognitions of the individual are selectively organized. This implies selective perception (Dearborn, DeWitt and Simon, 1958) and meaningful translation of external stimuli. In the present study, different aspects of the offer of routine epidural block would be perceived, and translated into terms that are meaningful for the individual. This process is usually unconscious, and distortion in translation is in line with the emotions and wants of the individual (Pepitone, 1950).

2. Cognitions develop into systems in accordance with the principles of learning and stimulus organization. The implication for the present study is that past experience also influences the integration of the changes of pregnancy into the woman's system.

3. The properties of a cognition are influenced by the system of which it is a part.

4. Cognitive change is typically initiated by changes in the individual's information and wants. The ambivalent woman in the present study fulfils the requirements of certain needs in making her decision, and cognitive change is likely to occur as a means of satisfying the remaining needs.

5. Cognitive change is in part governed by the characteristics of pre-existing cognitive systems; that is, the complexity of the system, the extent to which its elements are harmonious with one another, and the degree to which elements are inter-dependent.

The relevance of cognitive theory for the present study is that a translated perception of external events enters the woman's system. This translation is likely to be in terms of her past experience, present needs and attitudes, and expectations of the future. Cognitive change is initiated by the integration of new perceptions. The principle underlying such change is suggested by theories of cognitive consistency, postulated in various forms by Festinger (1957, 1958, 1964), Heider (1946, 1958), Abelson and Rosenberg (1958), and Osgood and Tannenbaum (1955).

These theories propose that the individual is motivated to achieve homeostasis in the cognitive system by optimising harmony among its various elements. One would, therefore, propose that the woman would decide on routine epidural block and subsequently change her attitudes in a direction that promotes cognitive consistency among her needs, opinions, emotions and behaviour.

Particularly in the woman who feels ambivalent, cognitive consistency theory would predict changes in the system that reinforce her decision. For instance, women accepting routine epidural block may perceive normal labour in even more threatening terms after the decision. Alternatively, women declining the offer may perceive normal labour as less threatening than before, or may reinforce their opinions of themselves as brave or sensible by declining.

Since attitude theorists consider three components viz. affective, cognitive and behavioural components (Allport, 1968), one would expect changes in all or any of these areas. That is, the woman may become less anxious (affective component), change her opinion of herself (cognitive component) or attend antenatal classes (behavioural component).

These factors are also interrelated, as shown, for instance, in a study by Brown et al. (1972) who found that the amount of barbiturates that had to be administered during labour was negatively correlated with prenatal measures of adaptation. That is, women who had adapted to the demands of pregnancy and labour were in fact better able to cope with the pain during labour. In other words, emotional and cognitive factors were related to behaviour.

It is necessary to bear in mind that characteristics of the pre-existing cognitive system will affect the extent to which a harmonious pattern of responses will occur. That is, some women may be able to cope with more inconsistencies than other women, possibly by not perceiving contradictory elements as inconsistent, or by experiencing less tension due to disharmony than other women.

7.4 INTEGRATION OF THEORY INTO AN INTERPRETATION OF THE MAIN RESULTS

The pregnant woman is involved in major reorganisation of her system (Chapter Two) incorporating the many changes of pregnancy, and experiencing heightened anxiety level (Chapter Three) due to the increased vulnerability of her system. Perceptions of internal and external events are integrated into the system in line with her past experiences, present needs and attitudes, and expectations of the future. Her perception of the offer of routine epidural block is similarly translated.

It is proposed that the need level at which she is currently operating is a major determinant of her decision to accept or decline the offer. Maslow's hierarchical theory of needs provides a framework for assessing these needs, and leads to a conception of the woman having many conflicting needs. Women operating on lower need levels are strongly motivated to reduce the anxiety which reflects the strain that the system is undergoing in adapting to pregnancy. This resolution may be accomplished in different ways, depending on the prepotent need level and the woman's perceptions of routine epidural block, normal childbirth and herself. For women offered routine epidural block, the decision to accept or decline is a factor in resolving conflicting needs.

After the decision is made, it is integrated into the system. This initiates attitudinal change in emotions, cognitions and behaviour, in line with theories of cognitive consistency.

The net effect is to reduce internal tension to proportions with which the system can cope, by reinforcing the decision. Key factors

are the woman's perceptions of external factors and the ability of her system to cope with anxiety.

Women operating on a prepotent need for self-actualization are conceived of as being less vulnerable to anxiety arising from the threat of normal labour, and more able to cope with it in search of self-fulfilment in childbirth. Thus one may propose that such women will still be motivated to reduce cognitive inconsistency and anxiety level, but would probably decline the offer of routine epidural block in favour of what Maslow terms a 'peak experience'.

Davenport-Slack and Boylan (1974) conclude that the "underlying factor contributing to a positive childbirth experience appears to be the woman's desire to be an active participant in her labour and delivery." Thus the woman who declines routine epidural block to satisfy this desire is in fact more likely to have a positive experience of childbirth and to have had prior positive childbirth experiences if a multipara.

The main result of the present study is that the groups did not differ significantly in anxiety level. In terms of the interpretation suggested above, one may propose that the subjects in the different groups found different ways of dealing with the adaptive demands of pregnancy.

Women accepting routine epidural anaesthesia incorporated this into their system adaptively, while those declining did not regard it as a major factor, either before deciding (due to the need level on which they were working) or after deciding (due to cognitive change).

Different perceptions and expectations of normal labour may account

for this difference to some extent. For the multipara, her prior experience of childbirth would naturally affect expectations of the coming experience, while the information available to the primipara would be influenced by her mother and other important women in her life. In addition, self-image is an important variable since the woman's assessment of how she will cope with childbirth depends not only on her perception of the event, but also of her coping capacity in the situation.

Analysis of the questionnaire data will be undertaken in the framework of the interpretation developed this far.

7.5 INTERPRETATION OF QUESTIONNAIRE DATA

7.51 Parity Distributions

It is interesting to note that no significant difference in anxiety level was found between primi- and multiparae. This indicates that a first pregnancy is no more anxiety provoking than a subsequent pregnancy, and supports the view that pregnancy involves major reorganization of the system for all women.

However, the different distribution of primi- and multiparae in Groups 1 and 2 is interesting. It seems worthwhile to consider this difference as a suggestive factor even though it did not reach statistical significance, since it indicates that few primiparae (four out of fifteen offered) chose to accept routine epidural block. This is surprising in view of the more pervasive change in lifestyle to be expected for primiparae, as well as the unknown nature of the experience of childbirth. Comments during the interview and written on the questionnaire indicate that many women (primi- and multiparae) felt one should experience normal childbirth at least once.

These comments implied that childbirth is recognised as a potentially maturing experience by many women, is regarded possibly as a test or challenge of some sort (as discussed by Deutch, 1945; Kitzinger, 1975) and that a prevalent social norm is that one should experience labour at least once. In these terms it is understandable that curiosity, or the self-actualizing potential inherent in each individual, or the need to conform might motivate primiparae to decline routine epidural block.

That many women do regard normal childbirth as potentially fulfilling, even when they accept routine epidural block, is substantiated by the fact that the overall majority of subjects regarded labour as 'fulfilling' in responding to Q16 (section 2) (forty-six out of seventy-six).

One might surmise that the multipara, having undergone the experience, is freed of the curiosity and social pressure, and is more likely to follow her own inclinations when offered routine epidural block. If her past experience of labour was bad or, in her view, unnecessarily painful or nonself-actualizing, she would be inclined to accept the offer unless other circumstances prevailed. Alternately if she had previously had a 'peak experience' (Maslow, 1968, 1970) during childbirth or increased her self-esteem by coping well, she may be likely to decline it. That many women do, in fact, have such 'peak experiences' during childbirth is substantiated by Tanzer (1968).

7.52 Attendance at Antenatal Classes

It is also interesting to note the distributions of women attending antenatal classes (see page 78). All primiparae attended such classes, whether accepting or declining routine epidural block. Among multiparae,

approximately two-thirds in Group 1 did not attend classes, while two-thirds in Group 2 did attend classes.

The difference between primi- and multiparae was statistically significant, and supports the view that pregnancy does involve more pervasive life change for the primipara, and more unknown factors, leading her to seek reliable information.

Although the difference in the distribution of multiparae attending antenatal classes between Groups 1 and 2 is not statistically significant, it may be regarded as suggestive since it indicates that fewer women accepting routine epidural block felt the need to attend antenatal classes, than those declining. This suggests that routine epidural block is perceived by those women accepting it as satsifying the need which inclines other women to attend such classes. Since antenatal programs of many different kinds, even the purely informative type, have been shown to reduce anxiety level during pregnancy (Biskind, 1958; Pleshette et al., 1956; Klusman, 1975), one may suppose that they provide a means of anxiety reduction for pregnant women. The fact that even programs which are purely informative fulfil this function may be understood in terms of Janis's (1958) theory of anxiety.

In studying surgical patients, he found that those with either particularly high or particularly low anxiety levels preoperatively adapted with more difficulty postoperatively (Janis, 1958) than subjects showing moderate levels of anxiety. His interpretation was that moderately anxious subjects were impelled to seek information and do part of the 'work of worrying' preoperatively, and were thus more able to cope with the postoperative situation. High anxiety levels prevented subjects

from constructively anticipating the postoperative experience. Particularly low levels of anxiety were regarded as a defence mechanism which prevented subjects from anticipating the postoperative experience realistically and preparing themselves for it adequately. A study by Levy and McGee (1975) supports Janis's theory when applied to pregnant women.

Thus one might interpret the data on antenatal class attendance as indicating that multiparae accepting routine epidural block were less needful of the information-providing function of antenatal classes, as well as the opportunity to do 'the work of worry' in advance. Conversely, a larger proportion of multiparae declining the offer were inclined to make use of the anxiety-reducing features of antenatal preparation, even though they had previously experienced childbirth. Primiparae, who had no experience of normal childbirth or epidural block, were more in need of information and anxiety-reduction opportunities.

It is interesting, in the light of Janis's theory, to note that the highest anxiety scores among all subjects were from subjects in Group 1 (see Figure 6.1) while the lowest were from subjects in Group 2. That is, the most highly anxious subjects in the sample accepted routine epidural block (anxiety scores far higher than any in Groups 2 and 4), supporting the view that the need for anxiety reduction may motivate some subjects to accept the offer; the subjects with the lowest anxiety scores declined the offer, indicating that they experienced no need of the anxiety-reducing features of routine epidural block (whether this was due to defensive denial or not).

It is also noteworthy that accepting routine epidural block as a means of anxiety reduction places the responsibility upon the doctor,

while attending antenatal classes for the same reason maintains the woman's responsibility for her own behaviour in labour. In Maslow's terms, people with a greater need for self-actualization accept responsibility for themselves to a greater extent.

7.53 Prior Experience of Epidural Anaesthesia

There was no difference in the distribution of women who had previously experienced epidural anaesthesia, between subjects who were offered routine epidural block and those who were not offered. However, in considering only those who were offered, all the women with prior experience of the anaesthetic accepted the offer.

Epidural anaesthesia is employed in normal obstetric practice where medically indicated, so the fact that some women had previously experienced it is not surprising.

That all the women with such prior experience accepted the offer indicates that they found it effective and safe.

7.54 Section 2 of the Questionnaire

7.541 Preliminary analysis: parity differences

In this section, significant differences between primi- and multiparae were found on Q12 (social image of the woman choosing routine epidural block) and Q15 (necessity of suffering normal labour if routine epidural block is available). Although the tables by Wilkinson (1950) indicate the high probability that these significant differences were due to chance, it is interesting to note the pattern indicated by these responses,

For Q12, more primiparae than expected reported an unfavourable image of women accepting routine epidural block, although the majority of all the women indicated a favourable image. This supports the view that the prevalent cultural norm is less favourable to primiparae choosing routine epidural block, but also indicates that the general social opinion of women choosing the anaesthetic is not unfavourable. This interpretation is reinforced by the fact that no significant differences were found between Groups 1 and 2 for either primi- or multiparae, that is, parity seems to be a more important factor in this case than whether or not subjects chose routine epidural block.

Responses to Q15 partly support the above view, with a majority of primiparae indicating that it is necessary to suffer normal labour even if routine epidural block is available, while the majority of multiparae responded in the opposite direction. However, in this case the parity factor is confounded by the fact that most primiparae declined routine epidural block, and a signficant difference between women accepting and declining was found for both primi- and multiparae.

All subjects accepting the offer felt it was unnecessary to suffer normal labour, while the majority who declined felt it was necessary. In interpreting this finding it is likely that this sharply polarized response indicates not only prior attitudinal differences between women who accept and those who decline, but the effect of cognitive change in line with consistency theory after the decision is made. This is particularly true for subjects accepting the anaesthetic, since it would be very difficult to reconcile one's behaviour with the opinion that it is necessary to suffer normal labour. For those declining, however, such

reconciliation is possible by feeling that it is unnecessary to suffer normal labour but it is desirable in terms of the self-actualizing potential of the experience.

For the other items in this section, in which no significant differences were found between primi- and multiparae, this lack of difference requires interpretation, since it indicates that parity is not an important factor in perceiving epidural anaesthesia, normal labour nor its effect on other aspects of the woman's life.

In considering questions relating to epidural anaesthesia, one may assume that it indicates that what the doctors have told their patients has been fairly uniform and has been confirmed by the experiences of women who have already undergone childbirth with epidural block.

For questions relating to normal labour and its effects, one may interpret that the data indicate that other factors are more important than parity per se. Since primiparae base their perceptions on information from divergent sources, and multiparae have had different experiences of childbirth, one would expect the variety of perceptions to be balanced in any sample of primiparae or multiparae. That is, parity itself is likely to influence perceptions less than the women's own prior experiences or those of their mothers and/or friends. One must bear in mind also that the statistical procedures are designed to reduce type 1 errors, rather than type 2 errors (Ferguson, 1966), and thus a nonsignificant difference has a higher probability of being due to chance alone than a significant difference.

7.542 Group differences

Questions yielding significant differences among the groups were Q5

(painfulness of administration of the epidural block), Q16 (the experience of normal labour), Q15 (necessity of suffering normal labour when routine epidural block is available), Q7 (the influence of the mother's experience of labour on her baby), Q11 (pain tolerance), and Q14 (ability to cope with normal labour).

Q15 has been discussed in the preceding section, since significant parity differences were also observed.

Q5 indicates that a greater proportion of women declining the offer rated the administration of epidural block as 'more painful' than women accepting. This would, in fact, appear to be a significant factor for some of the women in Group 2, who indicated on the questionnaire or in the interview that a fear of injections was their major reason for refusing routine epidural block. For such women this fear of the administration of epidural anaesthesia superseded their fear of the pain of normal childbirth, and is partly irrational in that women undergoing normal labour are fairly likely to receive other injections of analgesic drugs, and the administration involves only one injection. However, it would appear that these women could not bring themselves actively to choose to undergo the injection of epidural anaesthesia, possibly in the hope that they could avoid any other injections. In some of these cases, it is likely that the woman's anxiety level would be increased by accepting routine epidural block, since the strong fear of the inevitable self-chosen injection indicates a possible neurotic anxiety in this regard, and choosing it would occasion cognitive inconsistency.

On the whole, the subjects rated painfulness of administration of epidural block as 'less painful'. The one subject accepting the anaesthetic

who rated the administration thereof in the 'more painful' direction rated normal labour as even more painful than the administration of the anaesthetic.

Q7 and Q13, dealing with the perceived influence of the mother's experience of labour on her baby and on the rest of her life, bear comparison. For both items, the majority of subjects responded 'much influence'. However, no significant difference was found among the groups in perceiving the influence on the rest of her life, while a significant difference was found in perceiving the influence on her baby.

Of women in Group 1, more subjects than expected responded 'much influence', while more subjects than expected in Group 2 responded 'little influence'. In interpreting these results, it is obviously useful to know what type of influence the subjects had in mind.

From additional comments provided by subjects responding 'more influence', it appears that many women accepting routine epidural block regard a bad experience of normal labour as detrimental to their subsequent relationship with their infant, due to resentment, while women declining the offer largely felt that experiencing the pain of labour might make them more appreciative of the infant, particularly if they had a 'peak experience' during labour. The observed and expected frequencies of control subjects responding 'much influence' were fairly close.

These comments support the previous theory that 'security-seekers' are more likely to accept, and 'growth-seekers' more likely to decline routine epidural block, and that they perceive subsequent events in different terms.

Some subjects may have been referring only to the mother's physical

experience of labour, which may obviously affect the baby physically.

In future research, a more thorough investigation of this factor of 'influence' is indicated, since the questionnaire used in the present study dealt only with how much influence, and questions on what kind of influence, and how the experience influences the baby, are necessary for fuller understanding of the issue.

Q16, the experience of normal labour, has been discussed previously (see pg. 117) and supports the motivational theory developed. One interesting factor is that the pattern of responses in the control group is similar to that of the group declining routine epidural block, rather than an intermediate pattern between Groups 1 and 2. That is, more subjects than expected in the control group regarded normal labour as a 'good' rather than a 'bad' experience.

One may interpret this finding largely in the light of the cognitive consistency theory developed earlier. That is, the security seekers who accept routine epidural block due to their perception of normal labour as threatening, subsequently reinforce their decision by maintaining or even reinforcing this perception. Ambivalent women who decline the anaesthetic resolve their ambivalence partly by cognitive change in the direction of perceiving normal labour as less threatening or more fulfilling. Control subjects who are not offered routine epidural block similarly must come to terms with the inevitability of experiencing normal labour and may do this partly through cognitive change in the same direction.

At this point it is informative to assess the responses to Q2, Q3 and Q6 dealing with the safety and painfulness of normal labour. No

significant differences among the groups were found in rating the painfulness of normal labour nor its degree of safety for mother or baby. Most subjects rated normal labour as 'more painful , 'safe for the baby' and 'safe for the mother'.

In terms of the preceding theory one might expect differences in rating these important facets of labour, in the same direction as those found for Q16 in rating the experience of labour. However, the lack of such significant differences may be integrated into the theory in the following way.

Firstly, these factors do not allow rating of the self-actualizing potential of normal labour, as Q16 does. This supports the proposed view that the degree to which the self-actualization needs of the individual press for satisfaction is an important determinant of the pregnant woman's perception of normal labour and her decision regarding routine epidural block.

In addition, these findings support the view that the objective evaluations of the pain and safety of normal labour are translated into an attitude towards the experience in line with cognitive consistency theory, that is, in line with the woman's needs, attitudes and behaviour.

The large majority of women concurred in rating labour under epidural anaesthesia as painless, and safe for mother and baby; and in rating normal labour as painful, and safe for mother and baby.

Consideration of the women's perceptions of their own pain tolerance and ability to cope with normal labour (Q11 and Q14) reveals a highly significant difference among the groups. A larger proportion of subjects

accepting the anaesthetic describe themselves as having low pain tolerance and feel that they would cope poorly with normal labour, compared to those declining or not offered routine epidural block. The significance of these differences falls well within the required 5% confidence intervals.

Studies by Hall and Stride (1954) and Conn (1961) have shown that more anxious individuals have a lower pain tolerance than less anxious people, and a recent work by Klusman (1975) concludes that pain perception is enhanced by high anxiety. One might then interpret that more anxious subjects have probably discovered that they have a fairly low pain tolerance in the past and have built up a self-perception of themselves as having low pain tolerance. Normal labour would then present a particularly threatening situation for such women, and they would be more inclined to accept routine epidural block.

Once again, this decision is likely to be followed by cognitive change which would reinforce the self-perception and decision.

Cognitive rehearsal has been shown by Folkins et al. (1968) and Egbert et al. (1964) to be an effective means of increasing pain tolerance, and the cognitive change of subjects declining the anaesthetic is likely to include cognitive rehearsal, and thus, in fact, increase pain tolerance during labour. Clarr and Bindra (1956) also concluded that the affective component of attitudes affects pain threshold and pain tolerance. Thus the cognitive change effected by subjects who will have to undergo normal labour not only reduces cognitive inconsistency and tension during pregnancy, but is, in fact, an effective anticipatory mechanism for coping with pain. Spiesman et al. (1964) concur in stressing the important role of cognitive appraisal of the threat of pain.

As discussed previously, the cognitive consistency theory would explain the similar patterns found in Groups 2 and 4. When the groups were analysed two at a time (see pg. 94) significant differences were found between Group 1 and both other groups, but not between Group 2 and the control group, indicating that the most meaningful way of interpreting this item is to compare subjects accepting routine epidural block with all other subjects, who anticipate undergoing normal labour.

Ratings of epidural block and normal labour are relatively objective assessments, while perception of one's own pain tolerance is more related to self-image and past experience. One's overall assessment of one's ability to cope with normal labour relates directly to these two factors. A significant difference among the groups in rating their own perceived ability to cope with normal labour is found, with a high proportion of subjects in Group 1 perceiving themselves as likely to cope poorly. Few subjects in the other two groups perceived themselves in this way, and once again the control group shows a similar pattern to the group declining the anaesthetic.

It is interesting that no subjects declining routine epidural block felt they were likely to cope poorly, whereas some in the control group did feel this. This is understandable, since women actively declining the offer are likely to experience more cognitive change in assessing their ability to cope than those who have no choice.

Since this assessment must be based on perception of the situation and of one's own pain tolerance, it becomes clear that the woman's self-image is an extremely important variable, contributing far more to an understanding of the results than the more objective assessments of

childbirth. This finding supports the proposed theoretical model which proposes that personal factors such as needs, attitudes and self-perception distort the perception of external events before they are integrated into the system. This view is supported by a study by Cogan (1975) who found a wide difference in ratings of the painfulness of labour by the women concerned, their husbands, antenatal therapists and obstetricians, who have different attitudes and needs in the situation.

The final question, Q9, deals with the cost of epidural block, which was rated as expensive by all subjects except two, who were both in Group 1. This finding supports the assumption that subjects were all of a relatively high socio-economic status and that financial concerns were unlikely to be a major factor in deciding on routine epidural block.

In summary, the results are explicable in terms of the theory presented previously. It was found that the items which discriminated among the groups were those relating to self-perception rather than perceptions of the external events of labour and epidural block, indicating the important role of needs and attitudes in deciding to accept or decline routine epidural block. Support was also found for the theoretical application of cognitive theory to an interpretation of the results.

7.55 Section 3 of the Questionnaire

No items in this section yielded significant differences between primi- and multiparae.

Most items dealing with possibly psychosomatic symptoms of pregnancy revealed no significant differences among the groups. These items included those dealing with headaches, constipation and diarrhea, dizziness and

fainting spells, weight gain, assessment of general health, palpitations, tiredness and sleeping problems.

Q8, dealing with nausea, was the only item of this group to indicate significant differences among the groups, with far fewer subjects in Group 1 reporting frequent nausea than those in Groups 2 and 4.

Since nausea in pregnancy is a consistently important factor in other studies (Uddenberg et al., 1971; Palmer, 1973), this might possibly be interpreted as indirect evidence that accepting the offer of routine epidural block lessens anxiety level during pregnancy, since responses included in the 'frequent' category dealt with nausea experienced 'most of the time' and those in the 'infrequent' category dealt with no nausea or nausea 'part of the time'. Physiological changes are associated with nausea early in pregnancy, but nausea in late pregnancy is more generally regarded as psychogenic (Uddenberg et al., 1971) and has been shown to be significantly associated with unmarried status and negative attitudes to pregnancy. Although this interpretation is tenuous, it is suggestive.

Items 7 and 11 were intended to be exploratory projective items, since projective measures have proved useful in studying attitudes and feelings during pregnancy. However, no significant differences were found among the groups on these items.

Self-report of anxiety, according to McDonald (1968) is the most discriminating behavioural measure for presaging complications. No significant differences were found among the groups on Q12 and Q13, which were self-reports of emotional state during pregnancy and 'normally'. This reflects the main finding of no significant differences on the IPAT anxiety scale.

It is interesting, however, that the majority of subjects report their emotional state during pregnancy as 'anxious', and normally as 'calm'. This supports the widely-accepted view of heightened anxiety level during pregnancy.

Question 14 deals with the effect of the offer of routine epidural block on emotional state during pregnancy, which is the main concern of the present study. A significant difference between Groups 1 and 2 was found, which was well within the required 5% confidence interval (Fisher exact probability .004).

No subjects declining the offer reported lessened anxiety level, while one-third of those accepting the offer felt it reduced their anxiety level. The majority of subjects not reporting lessened anxiety level indicated that the offer had no effect on their emotional state (see discussion, pg. 109). This finding supports the proposed theoretical view that the offer of routine epidural block does reduce anxiety level for women who accept it, for reasons which are allied to their need to accept it. That is, it is probable that many of the more anxious women accept routine epidural block, which then reduces their anxiety level during pregnancy, and helps to explain why no significant difference in anxiety level among the groups was found in the present study.

One may also understand that other subjects of low or moderate anxiety level in Group 1, particularly multiparae with more than one previous successful experience of childbirth, would be less threatened by labour, feel they had already 'proved' themselves and had experienced childbirth, might take a more pragmatic and less emotionally charged attitude to

routine epidural block, accept the offer and report that it had no effect on their emotional state during pregnancy.

Three multiparae in Group 1 reported an increase in anxiety level due to the offer, while no subjects in Group 2 did so. Although further analysis of this item by recollapsing the scoring categories into 'more anxious' and 'other' (see pg.103) showed that this difference was not statistically significant (either between primi- and multiparae or between Groups 1 and 2) the reported experience of these three subjects supports the proposed view of conflicting needs being involved in the decision, and Kierkegaard's view that being faced with a decision is anxiety-provoking.

The fact that no subjects who declined the offer reported increased anxiety due to being faced with the decision is understandable in terms of the theory and the data on when the decision was taken.

Theoretically, one may conceive that ambivalent women who accepted the offer were motivated by lower needs which were stronger (i.e., less sated) than those of ambivalent women who declined, even though both groups were operating at a higher prepotent need level. Maslow (1968, 1970) stated that fulfilment of a higher need is preferred to fulfilment of a lower one by people who have experienced both. Thus ambivalent women who fulfil their lower needs by accepting routine epidural block may feel more anxious, having previously experienced fulfilment of prepotent higher needs, than ambivalent women who fulfil higher needs by declining the anaesthetic.

Data on the decision making of subjects supports this interpretation. Subjects were divided into those who reported finally deciding before and

after six months of pregnancy (see pg. 103).

Subjects who accepted the offer generally made their decision later in pregnancy, which indicates that the decision was harder to make, and was made as childbirth became imminent. This is when the threat to lower needs becomes evident even to women who may defensively deny or repress it in early pregnancy.

It is also tenable that the less ambivalent subjects in Group 1 were those who decided before six months, and these would include the highly anxious subjects operating on lower need levels as well as the least anxious 'pragmatic' women discussed above (pg. 143).

The majority of subjects declining the offer decided earlier, suggesting that the decision was easier to make and explaining why most of them reported it not affecting their emotional state during pregnancy. In addition, in terms of Janis's theory, this behaviour would allow more time to prepare constructively for the experience by attending antenatal classes, effecting cognitive change and doing 'the work of worry' well in advance.

As discussed above for subjects in Group 1, it is probably the few most ambivalent women in Group 2 who decided later. This is supported by the comments of the late-deciders in Group 2 in the after-test interview, both of whom expressed that they still felt a bit tentative about their decision. None of the many late-deciders in Group 1 expressed such feelings, supporting the idea that as childbirth becomes imminent the threatened lower needs press more urgently for satisfaction.

The final item in section 3 offered a choice of opinions on the use of routine epidural anaesthesia. Since no women checked response (d),

"every woman should have an epidural", this was omitted from the statistical analysis (see pg. 98). No significant differences were found between the groups on this item, with the majority of subjects in both groups responding that "every woman should be offered an epidural". Most of the remaining subjects felt that "the doctor should decide who should be offered an epidural", while the smallest number of subjects responded that "the doctor should decide who must have an epidural".

The majority of women were thus in favour of being offered routine epidural block, whether or not they accepted it. This ties in with the finding that a significant proportion of those accepting the offer felt it reduced their anxiety level, while most other women in both groups reported no effect on their emotional state. Even among women who felt that the doctor should exercise some discretion, most felt it should be limited to deciding who should be offered routine epidural block rather than who should have it.

7.56 Section 4 of the Questionnaire

Although this section was found to be unsuitable for statistical analysis, one general observation is noteworthy.

In considering column 1 (subject perceiving the person mentioned as being in favour of her having routine epidural block) and column 2 (subject perceiving the person mentioned as being against her having routine epidural block), subjects gave most responses in the category which supported their decision. Whether this indicated behavioural conformity with the attitudes of important people in the environment, selective perception (since many subjects did not complete the section fully) or

perception which reinforced the subject's decision, is unclear. The proposed theory would suggest that it is a combination of these factors and this observed consistency lends some credence to the systems and cognitive consistency aspects of the theory.

7.6 GROUP 3: UNDECIDED SUBJECTS

This group was omitted from the statistical analysis owing to the small number of subjects qualifying for inclusion (four) who were encountered during the year of testing.

Thus most women who were offered routine epidural block had made a decision by the time of testing, which was within three weeks of due date, at which time labour might begin at any moment.

Considering the total IPAT anxiety scores of the few undecided women it is noteworthy that one scored forty-six, an exceptionally high score, and one scored six, the lowest score obtained by any subject in the sample. The other two scores of thirty-one and thirty-two were average for the sample.

Such extreme scores in such a small sample are interesting in the light of Janis's (1958) theory, which would regard the high score of forty-six as indicating debilitating anxiety, while the low score of six would indicate a defensive denial or repression of anxiety.

This interpretation is partly borne out by the fact that subject C (anxiety score six) was the only subject in this group who did not attend antenatal classes, i.e., did not seek information, and scored most anxiety-points on items dealing with covert rather than overt anxiety on the IPAT scale.

In considering the questionnaire responses, particularly those yielding significant differences among the groups, all the undecided subjects rated normal labour as 'fulfilling' and labour with epidural block as 'bearable'. In terms of prior discussion, these subjects regarded normal childbirth as a potentially self-actualizing experience.

One would, then, propose that the source of ambivalence would be the conflict between the self-actualizing needs and lower needs.

Subject A, the high-anxiety subject, rated normal labour as unbearably painful, labour with epidural block as painless, her own pain tolerance as low and felt she would cope poorly with normal labour. This is the general pattern for subjects accepting routine epidural block and this subject did subsequently decide to accept the offer.

The other subjects in this group all rated their own pain tolerance as low, but felt they could cope adequately with normal labour, and it may be this inconsistency that reveals their ambivalence. None of these subjects subsequently had epidural block in labour.

No consistent revealing pattern of responses was found in the IPAT or questionnaire responses of this group of subjects, and they were unable to be contacted subsequently for further interview. Three of the subjects were tested twenty-one, twenty and nineteen days before due date and may have made a decision if tested later, but many subjects in the other groups were also tested at this stage of pregnancy, and had made a decision. One undecided subject was tested four days before her due date, so the undecided subjects were not simply tested at an earlier stage than others.

Thus it is not possible to draw any general conclusions about Group 3

subjects, and further investigation of undecided subjects is indicated in future research.

7.7 SUMMARY OF DISCUSSION

The major hypothesis of the study predicted a difference in anxiety level in late pregnancy among women accepting, those declining, those undecided and those not offered routine epidural block in labour. No such difference was found.

The findings seemed to be an acceptable reflection of the sample tested, and are likely to be generalizable to a comparably limited population.

The hypothesis was based on the literature connecting anxiety level in pregnancy to paranatal complications, a systems view of the psychology of pregnancy, an integrated general theory of anxiety and a proposed theoretical view of the effect of an offer of routine epidural block on anxiety level in pregnancy.

The hypothesis was partially supported by the questionnaire responses of subjects accepting the offer, and it appeared that a more complex conception of the effect of offering routine epidural block to pregnant women was required.

A more complex theoretical view was developed in interpreting the findings, which was consistent with the systems view of the psychology of pregnancy, the proposed anxiety theory and the data obtained.

The major theoretical additions were a consideration of needs, in terms of Maslow's (1970) hierarchical theory, and the further application

of theories of cognition, particularly theories of cognitive consistency.

The anxiety theory on which the hypothesis was based referred to lower need levels in terms of Maslow's (1970) hierarchical structure, and the concept of higher self-actualization needs was fruitful in interpreting the data.

It is proposed that the prepotent need level of the woman offered routine epidural block determines whether or not she accepts the offer.

The anxiety-provoking features of imminent labour threaten lower needs and 'security-seeking' women are likely to accept the offer. These 'security-seeking' women are conceptualized, in terms of the systems view of pregnancy, as those whose psychological systems are being severely strained by the adaptive demands of pregnancy and they are thus strongly motivated to maintain the integrity of the system.

'Growth-seeking' women are conceptualized as having a more flexible system which is integrating the changes of pregnancy adaptively. Their primary motivation is self-fulfilment, and labour is a potentially self-actualizing, rather than disastrous, experience for these women. Hence, although they also experience heightened anxiety level during pregnancy, it is 'facilitating', rather than 'debilitating' anxiety, and contributes to an adaptive re-organization of the system during pregnancy.

Most women are conceived of as operating on the intermediate prepotent need levels, and experience conflict in trying to satisfy threatened lower needs, prepotent love and esteem needs, and the growth needs.

This conflict may be resolved in many different ways, and the unique way in which each woman does so depends on her particular environmental and emotional circumstances, her perceptions, attitudes, personality and need system.

For women offered routine epidural block, deciding to accept or decline the offer is part of this resolution and once the decision is made, it is also integrated into the system.

Since all components of a system are interdependent, this decision affects other components in being incorporated into the system.

It is proposed that once the decision is made, cognitive change occurs which optimizes harmony among the woman's attitudes, perceptions, feelings and behaviour. These tend to change in a direction that reinforces the woman's decision.

Optimal harmony in the system means that "the threat that the individual's psychological system is inadequate to organize, predict and respond appropriately to the environment" (Chapter Three) is reduced, that is, anxiety is reduced by adaptive changes in the system.

Interpreting the main findings of no difference in anxiety level among the groups in the framework of this theory, all subjects cope with the demands of pregnancy differently, in whichever way leads to optimal harmony in the system. For women who are offered routine epidural block, the offer is perceived, accepted or declined, and integrated into the system in a way that is optimally harmonious with needs, attitudes and experiences. Thus an <u>a priori</u> difference is proposed between women who accept and those who decline, as well as a difference in the manner in which they integrate

the offer into the system. The net result is no difference in anxiety level among the groups, since all women have coped with the heightened anxiety level in pregnancy in different ways, using the resources at their disposal. Routine epidural block is regarded as one resource, which may be used by women to whom it is offered in different ways.

For all women, sources of anxiety remain, since not all needs can be fully met in resolving the situation optimally. For women choosing routine epidural block there is the possibility of being unable to have the anaesthetic for some unavoidable reason, for other women the threat of pain is still operative, and for all women fears for the safety of the baby and other uncontrollable factors still exist.

The aim of the questionnaire was to aid in interpreting the main results and to indicate directions for further research. Support for the proposed theory was provided by questionnaire responses.

The majority of subjects rated the experience of normal labour as 'fulfilling', supporting the view that self-actualization needs are relevant to the present issues, and group differences on this item indicated that need level is a consideration in whether or not women accept routine epidural block.

The groups did not differ in their evaluations of normal labour or labour with epidural block, but differed significantly in their assessments of their own pain tolerance and ability to cope with normal labour. This provided some support for the idea that external events are translated before being integrated into the cognitive system, and indicated that the woman's self-perception is a more important predictive variable than her

relatively objective evaluations of external factors.

Support for the inclusion of cognitive consistency theory was indicated in group differences on certain items and in the similarities found in the responses of subjects declining the offer and control subjects.

Conclusions, implications of the interpretation and directions for further research are discussed in the following chapter.

CHAPTER EIGHT: CONCLUSIONS, IMPLICATIONS AND DIRECTIONS FOR FURTHER RESEARCH

8.1 CONCLUSIONS

8.11 Main Results

The main conclusion of the study is that offering routine epidural anaesthesia to pregnant women in this sample did not affect general anxiety level. This conclusion is generalizable only to a comparable group of white, middle-to-high socio-economic status, well-educated, married women.

The limited generalizability of the findings is important, since it is possible that a different or more generally representative sample may have yielded different results. It may still be fruitful for further research to be conducted on a larger, more representative sample of pregnant women, particularly if changes in the experimental design are made which take cognisance of the proposed interpretation of the results.

This interpretation suggests that need levels prior to the offer of routine epidural block are an essential consideration, as well as anxiety level, and that changes in anxiety level over the period of pregnancy are more germane to the issue than simply anxiety level in the final stages of pregnancy.

8.12 Subsidiary Data

Analysis of the questionnaire data leads to the further conclusion that the woman's self-image is an important variable in predicting whether or not she will accept routine epidural block. Aspects of self-image

yielding significant findings were the woman's perceptions of her own pain tolerance and her ability to cope with labour.

In addition, the relative importance of the woman's perception of the experience of normal labour, rather than her opinions of its painfulness and safety, lead to the conclusion that a holistic approach to the issues must be taken, which focusses on the woman rather than external factors.

8.2 GENERAL PRACTICAL IMPLICATIONS

8.21 Offering Routine Epidural Block

The aim of the present study was to provide some empirical data relevant to the current controversy on routine epidural block in childbirth. The medical assessment of the procedure presented in Chapter Four showed the complexity of the issue, and the present study focussed on the psychological implications of offering routine epidural block to pregnant women.

The findings do not conclusively support the views of either proponents or opponents of routine use of the procedure, but the proposed interpretation aids in understanding the issue and has implications for its constructive application.

Since approximately half the women who were offered routine epidural block accepted and half declined the offer over the period of testing, one may conclude that routine epidural block is desirable to some women and not to others.

This implies that it is valuable to offer it to pregnant women, so that those who desire may accept, but that routine epidural anaesthesia

should not be imposed on women who wish to decline the offer. Doing so could deprive these women of a peak experience and deny them the opportunity to mature in adapting to the demands of pregnancy.

On the other hand, making routine epidural block available to women who desire it may be beneficial in reducing psychiatric problems of pregnancy. This follows from the conception that women experiencing severe strain in adapting to pregnancy are likely to accept routine epidural block, which may reduce the internal tension in the system. Since these are the women who are psychiatrically at risk, making routine epidural block available may reduce psychiatric morbidity in pregnancy.

One may conclude then that it is advisable to offer routine epidural block to pregnant women, but that this should be done with caution at the present stage of knowledge.

At the very least, doctors making the offer to all their patients (unless medically contraindicated) should discuss the issue fully with the woman concerned. Pleshette et al. (1956), in a broad study of pregnant women, similarly concluded that "the medication and anaesthetics available, with the indications for their use, should be discussed with the patient" (pg. 445). This may most conveniently be done by preparing a small pamphlet and subsequently discussing questions raised by the patient. In this way, the decision making may be aided and ambivalence reduced, particularly if the doctor is sensitive enough to be able to reinforce the decision the patient wishes to make, whether in favour or against the procedure.

Alternately, if the doctor is able to have a preliminary discussion with each patient, at a scheduled visit, along the lines indicated in

Chapter Seven, he may prefer to use his own discretion in deciding which patients might benefit from the offer and discuss it only with these patients and with those who specifically request it.

The 'caution' required obviously demands of the doctor both time and expertise in the emotional realm. Maximum benefit for both doctor and patient would probably be derived from bringing the psychologist into the picture, who would work in conjunction with the doctor. This suggestion is further discussed below.

8.22 A Team Approach to Antenatal Care

As presented in this study, childbirth is not only a medical concern, but a normal maturational crisis for women. It is a psychosomatic situation par excellence with psychogenic factors being implicated in medical complications. In view of this interrelationship of physical and psychological aspects of pregnancy, an alliance of the medical and psychological professions is indicated in working with pregnant women.

Considering routine epidural block, an example which is directly relevant to the present study, the psychologist may initially assess the patients to decide, in conjunction with the doctor, which patients may benefit from being offered routine epidural block. The feelings and ambivalences inherent in the situation may be dealt with psychotherapeutically, thereby optimizing their resolution. The doctor has little time or training for this function, which is best dealt with by a trained psychologist, leaving the doctor free to concentrate on medical care.

Most women could probably benefit from minimal psychological care,

since the literature indicates that they are particularly amenable to psychotherapy during pregnancy. Change during pregnancy is inevitable, motivation to cope with it is strong and the system is undergoing major reorganization in any event. Thus it is likely that even minimal psychotherapeutic intervention during pregnancy may be effective and beneficial to the woman, and aid the adaptive reorganization of her system. A recent study by Pines (1972) supports this view.

Since the issue of routine epidural block is complex, such medical-psychological teamwork is indicated in making optimal use of the procedure.

Aside from the immediate issue of routine epidural block, it is proposed that a team approach to antenatal care in general would be advantageous.

Psychogenic factors are implicated in conditions such as hyperemis gravidum, toxaemia of pregnancy, excessive weight gain, psychosomatic symptoms during gestation, a history of spontaneous abortion, etc., and women suffering from these are medically at risk. Referral of such women to a psychologist may reduce the incidence or severity of these conditions and hence improve the outcome of these pregnancies.

Psychological help in preparing women emotionally for childbirth would also provide the doctor with patients who are more cooperative and less demanding during labour, and maximize the opportunity for the woman herself to have a positive experience of childbirth.

Participation in a programme of antenatal care would provide the psychologist with the opportunity to treat incipient emotional illness,

refer patients who are psychiatrically at risk for further treatment and promote psychological growth in mothers-to-be.

To sum up, a medical-psychological team approach to antenatal care would best cope with the medical and emotional needs of the pregnant woman, reduce the risk of psychosomatic and psychiatric complications of childbirth, facilitate the work of the obstetrician and maximize the opportunity for childbirth to be a maturing experience for the woman.

8.23 Community Mental Health

A medical-psychological team approach has wider implications for the community. Aside from the issues discussed above, pregnancy provides an excellent starting point for preventive psychological care.

A first pregnancy, particularly, affects marital relationships, and may be a destructive or strengthening turning point in a marriage. Impending parenthood is an important event for both husband and wife, and the woman's increased need for support during pregnancy, particularly from her husband, makes a harmonious marital relationship during pregnancy even more important.

The importance of this factor is supported by a recent study by Henneborn and Cogan (1975) who found that wives whose husbands attended labour and birth reported less pain and had a significantly lower probability of receiving medication. These husbands and wives also reported more positive feelings about the total birth experience. Wenner et al. (1969) also highlight the importance of harmonious supportive marital relationships during pregnancy.

Thus pregnancy is an excellent opportunity for preventive marital guidance. Psychological help in stimulating self-and interpersonal awareness, and in resolving the normal problems arising in a marriage due to pregnancy, may promote the harmony and mutual support which strengthens marital bonds. It may also provide the couple with the opportunity to develop emotional problem-solving and coping mechanisms with which to deal with later interpersonal problems.

Pregnancy is also the starting point of parent-child relationships, and, as such, is the starting point for preventive parent-child care. Particularly for a first pregnancy, the couple face the imminent problems of childrearing.

Childrearing practices are largely influenced by macro-environmental norms and the parents' own childhood experiences. The psychologist can promote good parenting by providing up-to-date information on childrearing, specific information on the developmental needs of children, and various ways of handling these, as well as by stimulating self-awareness in the parents-to-be and an awareness of interpersonal processes. Thus in making use of pregnancy as an opportunity for preventive parent-child care, the psychologist may promote family harmony before problems have arisen and parents have become defensive.

In short, pregnancy is a period of change for women and their husbands, and a period of openness to learning. Community mental health may be served by using this opportunity for preventive psychological care, particularly in marital guidance and laying the foundations for good parent-child relationships.

8.24 Practical Aspects of an Antenatal Team Approach

In developing the concept of an antenatal team, it is proposed that the medical and psychological professions form an alliance in treating pregnant women, and make use of other community resources.

Pregnant women consulting an obstetrician might be introduced to a psychologist at the same time, who would work in conjunction with the doctor and be available to the women when desired. In considering procedures such as routine epidural block, a joint decision on who might benefit from such an offer could be made, and the patient could subsequently discuss her decision with the psychologist after obtaining the medical information from her doctor.

Patients requesting or needing psychological care could be referred by the doctor to the psychologist, who would ideally be available to the husbands as well, for individual or joint therapy with their wives.

The psychologist could run a group, or groups, for pregnant women, their husbands, or both together, in which their experiences and feelings could be discussed. In this way the people concerned could become aware of the psychodynamic and interpersonal changes they are experiencing, learn different ways of coping with these and meet other people undergoing similar experiences, to mutual advantage. The major aim of these groups would be to help people anticipate and cope adaptively with the demands of pregnancy, childbirth and parenthood.

Other community resources should also form part of this integrated approach, where relevant. For instance, the psychologist may refer women or couples for psychiatric care or marriage guidance if necessary, or to

antenatal therapists who provide information and childbirth preparation, or to nurses running courses on childcare, etc. The aim would be to make resources available to people who need or desire them, rather than to overlook the non-medical needs of pregnant women.

8.25 Summary

The theory developed in the present study leads to the conclusion that the issue of routine epidural block should be seen in the light of a holistic view of pregnancy. This implies focussing on the woman herself, in her environment, and considering external factors, such as routine epidural block, as components of a larger system.

A major implication of this view is that the woman makes not only medical but emotional demands on her environment. It is proposed that these are best met by an alliance of the medical and psychological professions, which can provide the woman with antenatal care and access to other community resources. Pregnancy is regarded as a period of change and openness to learning as the system undergoes major reorganization. It is an opportunity to promote personal growth and community mental health via a team approach to antenatal care.

8.3 IMPLICATIONS FOR FURTHER RESEARCH

8.31 Methodological Issues and Relevant Variables

Since a more complex theoretical view was needed to interpret the findings, this implies that a more complex experimental design is required to examine the issues more fruitfully.

The main implication of the theory is that psychological factors

(e.g., needs, anxiety level, attitudes) play a part in the decision on routine epidural block, and are also affected by the decision.

This implies that pretesting of variables before offering routine epidural block would be a valuable and valid empirical study. The aim would be to discover which variables, assessed before offering routine epidural block,discriminate between women who subsequently accept, decline or do not make any decision themselves on the offer.

The study could be carried out by testing women soon after pregnancy is confirmed on an anxiety scale, a need scale, a questionnaire on perceptions and attitudes towards pregnancy and labour, and a self-image assessment (e.g., a Q-sort). It might also be of value in such exploratory research to administer a comprehensive personality battery (e.g., the MMPI or 16PF) to investigate which personality variables are relevant, aside from the ones suggested by the present research. An in-depth interview and/or projective tests might accompany the objective testing, to be rated on the same variables by trained personnel. Thereafter the doctor would offer routine epidural block, and subjects would be divided into groups, as in the present study, according to their decision in the final stages of pregnancy.

To further this area of study by investigating the effects of the offer of routine epidural block, a test-retest design is indicated. Once the discriminating variables contributing to the decision are discovered, assessment of these before making the offer and then reassessment after the woman has made a decision allows investigation of changes in the variables, i.e., allows assessment of the effects of the offer. In the present study, there is no way of separating which variables contributed

to the decision, and which were the result of the decision. Only a before-after design can separate these factors.

The design of such an experiment might be relatively simple, and deal only with one important variable, e.g., anxiety level. One would measure anxiety level before offering routine epidural block and then again in the final stages of pregnancy. However, a multifactor approach would be more in keeping with the complexity of the issue, and would contribute to an understanding of the interplay of factors involved. A number of major factors (defined theoretically or derived from previous research) could be assessed before making the offer and then reassessed in the final stages of pregnancy. The present study indicates that anxiety level, need level, self-image and attitudes to pregnancy and labour might be such major variables.

8.32 Summary

Thus the present study was methodologically inadequate to the complexity of the issue, since it did not deal with variables contributing to the decision. However, it was necessary to perform this study to learn that the offer of routine epidural block is not an important enough factor in itself to have a general effect on anxiety level in pregnancy, and to learn where the greater complexity of the issue lies.

It appears to be in the systems nature of the psychology of pregnancy, and the issue of routine epidural block can be more fruitfully studied as a component of the system.

The focus of research then changes from attempting to discover what 'the effect' of offering routine epidural block is, to discovering what

its effect is in different circumstances.

Circumstances worth investigating that emerge from the present study are need levels, anxiety levels, and perceptions of pregnancy and labour. The next step is to study the interplay of these factors with the offer of routine epidural block.

8.4 FURTHER AREAS OF INVESTIGATION

The view of the psychology of pregnancy developed in the present study indicates further areas of investigation which may profitably be studied. While the psychology of pregnancy is a valid and interesting field of study in itself, various characteristics of the pregnancy period make this an opportunity to further other general areas of theoretical interest as well.

8.41 Maturational Crises

Pregnancy is a period of life change and thus a normal maturational crisis for women as postulated by Rapoport (1963) and Pines (1972). The general field of maturational crises may thus be investigated by studying pregnancy as a maturational crisis, comparable to other such crises as adolescence, menopause, old age, etc.

The researcher who is interested in the broader field of maturational crises could attempt to discover the psychological similarities between pregnancy and other maturational crises. That is, one could develop a definition of the term by discovering which conditions are necessary and sufficient to label an experience a 'maturational crisis'. Similarly, what are the conditions that lead to adaptive and maladaptive resolutions

of maturational crises. Thus by studying pregnancy from this viewpoint more generally applicable psychological principles may be developed which refer to other specific areas (e.g., adolescence), and the literature on these other areas may, in turn, further the study of pregnancy itself.

Along the same lines, the role of psychotherapeutic intervention in maturational crises may be studied.

By providing programmes of psychological help for pregnant women and/or other people experiencing various maturational crises, and comparing these groups to control groups, the effectiveness of psychotherapeutic intervention in different forms may be investigated.

Fatherhood may be regarded as a maturational crisis for men (Ginath, 1974) and could similarly be studied. A contribution to the study of sex differences could also be made by investigating the difference in the way that men and women cope with impending parenthood.

Thus on a more general level, pregnancy provides an opportunity for further research on maturational crises, and may benefit from, and contribute towards, an understanding of other specific areas of investigation.

8.42 Change

Pregnancy provides an opportunity for the study of the process of change per se. Since it is a well-defined time period in which change is inevitable, the process of change in the cognitive, affective and behavioural aspects may be studied.

Psychotherapy is concerned with change, and, since pregnancy allows the naturalistic observation of the process of change, this type of research may contribute to the development of theories of psychotherapy and techniques for its application. These theories and techniques may be cross-checked by subsequently applying them to pregnant women and other subjects and assessing their effect on the process of change.

8.43 Anxiety

Pregnancy provides an excellent opportunity for the study of anxiety per se. It is a well-defined time period during which anxiety usually increases, and the external factors contributing to a change in anxiety level could profitably be studied, as well as their interrelationships and how they change over time.

State and trait anxiety could be examined, as well as the relationship between them, since pregnancy involves situational anxiety (i.e., anxiety which occurs in response to various situational changes during pregnancy) as well as a change in general free-floating anxiety level (i.e., vulnerability to anxiety).

The motivational aspects of anxiety may also be studied during pregnancy, since most women experience heightened anxiety level during this period. For some it leads to greater maturity while for others it leads to emotional problems. This allows research on the difference between facilitating and debilitating anxiety.

8.44 Self-actualization

Pregnancy is a period which often leads to personal growth in women,

and childbirth is a self-actualizing or peak experience for many of them. Thus the need for self-actualization may be investigated during pregnancy, as well as the process of psychological growth, the conditions for a peak experience, and its impact on the individual. Shostrom (1964) has developed an inventory for the measurement of self-actualization which would allow empirical studies in this area.

8.45 Psychosomatic Medicine

Pregnancy has physiological and psychological aspects and the study of their interrelationship contributes to psychosomatic medicine in general.

However, this area offers better research opportunities than those which necessitate retrospective study of an already defined sample with psychosomatic complaints. This is due to the well-defined and limited time period of pregnancy which allows controlled prospective studies. Prospective studies have the advantage of involving subjects who do not, as well as those who do, later develop psychosomatic complaints and complications. In addition, objective assessments of variables may be made during the time period, and criteria may be chosen in advance.

8.46 Decision Making

One specific area of interest that may be developed in studying pregnant women who are offered routine epidural block is that of decision making.

It has become apparent during the present study that making the decision on routine epidural block is a complex process involving a number

of related factors. These women are required to make a decison of relevance to themselves within a particular time period. Decision making may conveniently be studied in this situation, since the researcher may pretest variables before the woman is offered routine epidural block (i.e., before the need for a decision is known to the subject) and a specific time period for the decision making is defined. In addition, the decision is relevant to the woman herself, rather than a relatively unimportant experimentally-introduced variable, and the decision-making process is likely to reflect the gamut of emotional and cognitive needs involved in 'real-life' decision making.

8.47 Summary

While the study of pregnancy is of interest in itself, it also provides opportunities for research in other fields. Pregnancy involves major physiological, psychodynamic, interpersonal and environmental changes over a well-defined and limited time period. This allows well-controlled prospective studies in a number of areas of theoretical and practical interest, some of which are discussed above.

CHAPTER NINE: ABSTRACT

The aim of the study was to provide some empirical evidence in the current controversy regarding offering routine epidural block to pregnant women.

A survey of the literature indicated a correlation between high anxiety level during pregnancy and paranatal complications. Proponents of offering routine epidural block claim that it reduces anxiety level during pregnancy, and theoretical support for this proposal was presented.

The proposition was empirically tested by comparing the IPAT anxiety scores, obtained in the final stages of pregnancy, of four groups of pregnant women. Three of the groups had been offered routine epidural block before six months pregnancy - subjects in Group 1 had accepted, those in Group 2 had declined and those in Group 3 had not yet decided upon the offer. A comparable group of women who had not been offered routine epidural anaesthesia served as a control group.

No differences in anxiety scores of the groups were found. This finding was interpreted in the light of the theory provided, which was expanded to aid in the interpretation. A subsidiary questionnaire had been administered together with the anxiety scale, and group differences on this questionnaire were used in expanding the theory and interpreting the main results.

LIST OF REFERENCES

REFERENCES

A

Abelson, R. P., and Rosenberg, M. J. Symbolic psycho-logic: a model of attitudinal cognition. Behavioral Science, 1958, 3, 1-13.

Abramson, J. H., and Heron, J. A. An objective evaluation of hypnosis in obstetrics. American Journal of Obstetrics and Gynecology, 1950, 59, 1069.

Affonso, D. Report of maturational crisis: A psychological approach to maternity care: Workshop 1: Motivational crisis of childbearing: crisis of labour and birth. Honolulu: University of Hawaii Press, 1971.

Alexander, S. A., and Downs, J. J. Influence of weight gain on pregnancy. American Journal of Obstetrics and Gynecology, 1953, 66, 1161-1167.

Allport, G. W. The historical background of modern social psychology. In G. Lindzey (Ed.), Handbook of social psychology. Cambridge, Massachusetts: Addison-Wesley, 1954, volume 1, chapter 1.

Assael, M. J., Namboze, J. M., German, G. A., and Bennet, F. J. Psychiatric disturbances during pregnancy in a rural group of African women. Social Science and Medicine, 1972, 6, 387-395.

B

Badia, P., McBane, B., Suter, S., and Lewis, P. Preference behaviour in an immediate vs. variably delayed shock situation, with and without warning signal. Journal of Experimental Psychology, 1966, 72, 847-852.

Badia, P., Suter, S., and Lewis, P. Preference for warned shock: information and/or preparation. Psychological Reports, 1967, 20, 271-274.

Baizerman, M., Sheehan, C., Ellison, D. C., and Schelinger, E. R. A critique of the research literature concerning pregnant adolescents, 1960-1970. Journal of Youth and Adolescence, 1974, 3(1), 61-75.

Baker, A. A. Psychiatric disorders in obstetrics. Oxford: Blackwell Scientific Publications, 1967.

Barber, T. Y. The effects of hypnosis on pain. Psychosomatic Medicine, 1963, 25, 303.

Barrat, E. S. Anxiety and impulsiveness: towards a neuropsychological model. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 1.

Beck, A. T. Cognition, anxiety and psychophysiological disorders. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, Volume 2.

Bendig, A. W. 'Social desirability' and 'anxiety' variables in the IPAT anxiety scale. Journal of Consulting Psychology, 1959, 23, 377.

Bendig, A. W. The factorial validity of items in the IPAT anxiety scale. Journal of Consulting Psychology, 1960, 24, 374.

Benedek, T. Psychosexual functions in women. (Studies in psychosomatic medicine). New York: Ronald Press, 1952.

Benedek, T. Psychological aspects of pregnancy and parent-child relationships. In S. Liebman (Ed.), Emotional problems of childhood. Philadelphia: Lippincott, 1958, pages 1-16.

Bibring, G. L. Some consideration of the psychological processes in pregnancy. Psychoanalytic Study of the Child, 1959, 14, 113-121.

Bibring, G. L., Dwyer, T. F., Huntington, D., and Valenstein, A. F. A study of the psychological processes in pregnancy and of the earliest mother-child relationship. 1: Some propositions and comments. Psychoanalytic Study of the Child, 1961, 16.

Biskind, L. H. Emotional aspects of prenatal care. Postgraduate Medicine, 1958, 24, 633-637.

Blau, A., Slaff, B., Easton, K., Welkowitz, J., Springarm, J., and Cohen, J. The psychogenic etiology of premature births. Psychosomatic Medicine, 1963, 23, 201.

Blecher, J. A. Drugs concerned with pain relief in labour. In The Proceedings of the Congress of the Paramedical Association for Childbirth Education, Johannesburg, 1972.

Blitzer, J. R. On the transformation of early narcissism during pregnancy. International Journal of Psychoanalysis, 1964, 45, 89.

Board, F., Persky, H., and Hamburg, D. A. Psychological stress and endocrine functions. Psychosomatic Medicine, 1956, 18, 324-333.

Bobey, M. J., and Davidson, P. O. Psychological factors affecting pain tolerance. Journal of Psychosomatic Research, 1970, 14, 371.

Brew, M. F., and Seidenberg, R. Psychotic reactions associated with pregnancy and childbirth. Journal of Nervous and Mental Disease, 1950, 111, 408.

Brown, W. A., Manning, T., and Grodin, J. The relationship of antenatal and perinatal psychologic variables to the use of drugs in labour. Psychosomatic Medicine, 1972, 34, 119.

Buxton, C. L. Study of psychophysical methods for relief of childbirth pain. Philadelphia: Saunder, 1962.

C

Caplan, G. Emotional implications of pregnancy. In H. Stuart (Ed.), The healthy child; his physical, psychological and social development. Cambridge, Massachusetts: Harvard Press, 1960.

Caplan, G. The psychology of pregnancy and the origins of mother-child relationships. In An approach to community mental health. London: Tavistock Publications, 1961.

Castellan, N. J. On the partitioning of contingency tables. Psychological Bulletin, 1965, 64 (5), 330-338.

Cattell, R. B. Factor Analysis. New York: Harper, 1952.

Cattell, R. B. The chief invariant psychological and psychophysical functional unities found by P technique. Journal of Clinical Psychology, 1955, 11, 310-343.

Cattell, R. B. Validation and intensification of the 16 Personality Factor Questionnaire. Journal of Clinical Psychology, 1956, 12, 205-214.

Cattell, R. B. Second order personality factors in the questionnaire realm. Journal of Consulting Psychology, 1956, 20, 411-418.

Cattell, R. B. The conceptual and test distinction of neuroticism and anxiety. Journal of Clinical Psychology, 1957, 13, 221-233.

Cattell, R. B. What is 'objective' in objective personality tests? Journal of Counselling Psychology, 1958, 5, 285-289.

Cattell, R. B. Anxiety and motivation. In C. D. Spielberger (Ed.), Anxiety and Behaviour. New York and London: Academic Press, 1966, pages 23-62.

Cattell, R. B. The nature and genesis of mood states: a theoretical model with experimental measurements concerning anxiety, depression, arousal and other mood states. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 1.

Cattell, R. B., Dubin, S. S., and Saunders, D. R. Personality structure in psychotics by factorization of objective clinical tests. Journal of Mental Science, 1954, 100, 154-176.

Cattell, R. B.., and Gruen, W. The primary personality factor in 11-year-old children by objective tests. Journal of Personality, 1955, 23, 460-478.

Cattell, R. B., and Scheier, I. H. Clinical validities by analyzing the psychiatrist exemplified in relation to anxiety diagnoses. American Journal of Orthopsychiatry, 1958, 28, 699-713.

Cattell, R. B., and Scheier, I. H. The nature of anxiety: a review of 13 multivariate analyses comprising 814 variables. Psychological Reports, 1958, 4, 351-388.

Cattell, R. B., and Scheier, I. H. Extension of meaning of objective test personality factors: especially into anxiety, neuroticism, questionnaire and physical factors. Journal of General Psychology, 1959, 61, 287-315.

Cattell, R. B., and Scheier, I. H. The meaning and measurement of neuroticism and anxiety. New York: Ronald Press, 1961.

Cattell, R. B., Scheier, I. H., and Madge, E. Manual for the IPAT anxiety scale questionnaire (South African adaptation and norms). Pretoria, South Africa: Government printer, 1968.

Cattell, R. B., and Stice, G. F. The 16 Personality Factor Questionnaire. Champaign, Illinois: Institute for Personality and Ability Testing, 1957.

Chapple, P. A. L., and Furneaux, W. D. Changes of personality in pregnancy and labour. Proceedings of the Royal Society of Medicine, 1964, 57, 260.

Chertok, L. Motherhood and personality: psychosomatic aspects of childbirth. London: Tavistock, 1969.

Chertok, L., Mondzain, M. L., and Bonnaud, M. Vomiting and the wish to have a child. Psychosomatic Medicine, 1963, 25, 13.

Clarr, J. W., and Bindra, D. Individual differences in pain thresholds. Canadian Journal of Psychology, 1956, 10, 69.

Cogan, R. Comfort during prepared childbirth as a function of parity, reported by 4 classes of participant observers. Journal of Psychosomatic Research, 1975, 19(1), 33-37.

Colman, A. D., and Colman, L. L. Pregnancy: the psychological experience. New York: Herder and Herder, 1971.

Comando, E. N. Psychogenic factors in infertility. Journal of the Medical Society of New Jersey, 1959, 56 (3), 107.

Conn, J. H. The interrelationship between anxiety and pain. Journal of the American Society of Psychosomatic Dentistry and Medicine, 1961, 8, 40.

Couch, A., and Keniston, K. Yeasayers and naysayers: agreeing response set as a personality variable. Journal of Abnormal and Social Psychology, 1960, 60, 151-174.

Crawford, J. S. Clinical observation of 1000 lumbar epidural blocks administered during labour. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

D

Dancis, J. The placenta in fetal nutrition and excretion. American Journal of Obstetrics and Gynecology, 1962, 84, 1749-1755.

Davenport-Slack, B., and Boylan, C. H. Psychological correlates of childbirth pain. Psychosomatic Medicine, 1974, 36(3), 215-223.

Davids, A., and DeVault, S. Use of the T.A.T. and human figure drawings in research on personality, pregnancy and perception. Journal of Projective Techniques, 1960, 24, 362-365.

Davids, A., and DeVault, S. Maternal anxiety during pregnancy and childbirth abnormalities. Psychosomatic Medicine, 1962, 24, 464.

Davids, A., DeVault, S., and Talmadge, M. Psychological study of emotional factors in pregnancy - a preliminary report. Psychosomatic Medicine, 1961, 23, 93-103.

Davids, A., DeVault, S., and Talmadge, M. Anxiety, pregnancy and childbirth abnormalities. Journal of Consulting Psychology, 1961, 28, 74-77.

Dawkins, C. J. M. An analysis of the complications of extradural and caudal block. Anaesthesia, 1969, 24, 554.

Dearborn, Dewitt C., and Simon, H. A. Selective perception; a note on the departmental identification of executives. Sociometry, 1958, 21, 140-144.

Destounis, N. Complications of pregnancy: a psychosomatic approach. Canadian Psychiatric Association Journal, 1962, 7, 279.

Deutch, H. The psychology of women. New York: Grune and Stratton, 1944/5, 2 volumes.

Doughty, A. (Ed.) Proceedings of the symposium on epidural analgesia in obstetrics, Kingston hospital, Kingston-upon-Thames. London: H. K. Lewis, 1971.

E

Earn, A. A. Mental concentration - a new and effective psychological tool for the abolition of suffering in childbirth. American Journal of Obstetrics and Gynecology, 1962, 83(1), 29.

Edmonds, J. Neurological complications of epidural analgesia. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Egbert, L. D., Battit, G. E., Welch, C. E., and Bartlett, M. K. Reduction of postoperative pain by encouragement and instruction of patients. New England Journal of Medicine, 1964, 270.

Epstein, S. Heartrate, skin conductance and intensity ratings during experimentally induced anxiety: habituation within and among days. Psychophysiology, 1971, 8, 319-331.

Epstein, S. The nature of anxiety with emphasis upon its relationship to expectancy. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 2.

Epstein, S., and Clarke, S. Heartrate and skin conductance during experimentally induced anxiety; the effects of anticipated intensity of noxious stimulation and experience. Journal of Experimental Psychology, 1970, 84, 105-112.

Epstein, S., and Roupenian, A. Heart rate and skin conductance during experimentally induced anxiety; the effect of uncertainty about receiving a noxious stimulus. Journal of Personality and Social Psychology, 1970, 16, 20-28.

Eysenck, S. B. G. Personality and pain assessment in childbirth of married and unmarried mothers. Journal of Mental Science, 1961, 107, 417.

F

Ferguson, G. A. Statistical analysis in psychology and education. New York: McGraw-Hill, 1966 (2nd ed.).

Ferreira, A. J. The pregnant woman's emotional attitude - its reflection on the newborn. American Journal of Orthopsychiatry, 1960, 33, 553.

Ferreira, A. J. Emotional factors in the prenatal environment. Journal of Nervous and Mental Disease, 1965, 141(1), 108-118.

Fessel, W. J. Mental stress, blood proteins and the hypothalamus. Archives of General Psychiatry, 1962, 7, 427-435.

Festinger, L. A theory of cognitive dissonance. Evanston, Illinois: Row Peterson, 1957.

Festinger, L. The motivating effect of cognitive dissonance. In G. Lindzey (Ed.), Assessment of human motives. New York: Rinehart, 1958.

Festinger, L. Conflict, decision and dissonance. Stanford: Stanford University Press, 1964.

Fishman, J. R., Hamburg, D. A., Handlan, J. H., Mason, J. W., and Sachar, E. Emotional and adrenal cortical responses to a new experience. Archives of General Psychiatry, 1962, 6, 271-278.

Flapan, M., and Schoenfield, H. Procedures for exploring women's childbearing motivation, alleviating childbearing conflicts and enhancing maternal role development. American Journal of Orthopsychiatry, 1972, 42(3), 389-397.

Flowers, C. E. Obstetric analgesia and anaesthesia. New York: Harper and Row, Hoeber Medical Division, 1967.

Folkins, C. H., Lawson, K. D., Opton, E. M., and Lazarus, R. S. Desensitization and the experimental reduction of threat. Journal of Abnormal Psychology, 1968, 73, 100.

Frankl, V. E. Man's search for meaning: an introduction to logotherapy. New York: Simon and Schuster, Pocketbook ed., 1963.

Freud, S. The problem of anxiety. New York: Norton, 1936.

Freud, S. Beyond the pleasure principle. New York: Bantam, 1959.

Fried, P. H., Rakoff, A. E., and Schopbach, R. R. Pseudocyesis: a psychosomatic study in gynecology. Journal of the American Medical Association, 1951, 145, 1329.

Furneaux, W. D., and Chapple, P. A. L. Some objective and subjective characteristics of labour influenced by personality, and their modification by hypnosis or relaxation. Proceedings of the Royal Society of Medicine, 1964, 57, 261.

G

Ginath, Y. Psychoses in males in relation to their wives' pregnancy and childbirth. Israel Annals of Psychiatry and Related Disciplines, 1974, 12(3), 227-237.

Goldstein, K. The organism, a holistic approach to biology. New York: American Book Co., 1939.

Goodrich, F. W. Psychosomatic aspects of obstetrics. Psychosomatics, 1961, 2, 194.

Gordon, H. Fetal bradycardia after paracervical block; correlation with fetal and maternal levels of local anaesthetic. New England Journal of Medicine, 1968, 279, 910.

Gordon, R. E., and Gordon, K. K. Social factors in the prediction and treatment of emotional disorders of pregnancy. American Journal of Obstetrics and Gynecology, 1959, 77, 1074.

Gorsuch, R. L. Changes in trait anxiety as a function of recent states of anxiety. American Psychological Association Convention Proceedings, 1969, 329-330.

Gorsuch, R. L., and Key, M. K. Abnormalities of pregnancy as a function of anxiety and life stress. Psychosomatic Medicine, 1974, 36(4), 352-362.

Grimm, E. R. Psychological tension in pregnancy. Psychosomatic Medicine, 1961, 23, 520.

Grimm, E. R. Psychological and social factors in pregnancy, delivery and outcome. In S. A. Richardson and A. F. Guttmacher (Eds.), Childbearing - its social and psychological aspects. Baltimore: Williams and Wilkins, 1967.

Grimm, E. R., and Venet, W. R. The relationship of emotional adjustments and attitudes to the course and outcome of pregnancy. Psychosomatic Medicine, 1966, 28, 34.

Guze, S. B., DeLong, W. B., Robins, E., and Majerius, P. W. Psychologic factors and psychiatric disease in hyperemesis gravidum: a followup study of 69 vomiters and 66 controls. American Journal of Psychiatry, 1960, 117, 421.

H

Haas, S. Psychology of physical illness. London: Churchill, 1952.

Hall, D. E., and Mohr, G. J. Prenatal attitudes of primiparae; contribution to mental hygiene of pregnancy. Mental Hygiene, 1933, 17, 226-234.

Hall, K. R. L., and Stride, E. The varying response to pain in psychiatric disorders: a study in abnormal psychology. British Journal of Medical Psychology, 1954, 27, 48.

Hamilton, E. Emotional aspects of pregnancy: an intensive study of 14 normal primiparae. Dissertation Abstracts, 1955, 15, 1115-1116.

Harvey, W. A., and Sherfey, M. J. Vomiting in pregnancy: a psychiatric study. Psychosomatic Medicine, 1954, 16, 1.

Heider, F. Attitudes and cognitive organization. Journal of Psychology, 1946, 21, 107-112.

Heider, F. The psychology of interpersonal relations. New York: Wiley, 1958.

Henneborn, W. J., and Cogan, R. The effect of husband participation on reported pain and probability of medication during labour and birth. Journal of Psychosomatic Research, 1975, 19, 215-222.

Hetzel, B. S., Breuer, B., and Poidevin, L. O. S. A survey of the relations between common antenatal complications in primiparae and stressful life situations during pregnancy. Journal of Psychosomatic Research, 1961, 5, 175.

Hirst, J. C., and Strousse, F. Origin of emotional factors in normal pregnant women. American Journal of Medical Science, 1938, 196, 95-99.

Hockman, C. H. Prenatal maternal stress in the rat: its effect on emotional behaviour in the offspring. Journal of Comparative and Physiological Psychology, 1961, 54, 679-684.

Hollender, M. H., and McGehee, J. B. The wish to be held during pregnancy. Journal of Psychosomatic Research, 1974, 18(3), 193.

Hooke, J. F., and Marks, P. A. M.M.P.I. characteristics of pregnancy. Journal of Clinical Psychology, 1962, 18, 316.

Houston, B. K., Olson, M., and Botkin, A. Trait anxiety and beliefs regarding danger and threat to self-esteem. Journal of Consulting and Clinical Psychology, 1972, 38(1), 152.

Howells, J. G. (Ed.) Modern perspectives in psycho-obstetrics. New York: Brummer/Mazel, 1972.

Hubert, J. Belief and reality: social factors in pregnancy and childbirth. In M. P. Richards (Ed.), The integration of a child into a social world. London: Cambridge University Press, 1974.

I.

Illsley, R. The sociological study of reproduction and its outcome. In S. A. Richardson and A. F. Guttmacher (Eds.), Childbearing: its social and psychological aspects. New York: Williams and Wilkins, 1967.

Israel, S. L. Hypothalamus function and reproduction. Obstetrics and Gynecology, 1962, 20, 826-835.

Izard, C. E. Anxiety; a variable combination of interacting fundamental emotions. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 1.

J

James, W. Psychology, briefer course. New York: Henry Holt, 1892, 375, 376,

Janis, I. L. Psychological stress. New York: Wiley, 1958.

Jansson, B. Psychic insufficiencies associated with childbearing, Acta Psychiatrica Scandinavica (Supplement), 1964, 172, 1.

Javert, C. T. Spontaneous habitual abortion. New York: McGraw-Hill, 1957.

Jonea, A., Bentler, P. M., and Petry, G. The reduction of uncertainty concerning future pain. Journal of Abnormal Psychology, 1966, 71, 87-94.

K

Kann, J. An exploratory study of the relationship of certain psychological variables to the degree of difficulty in childbirth. Doctoral dissertation, University of Pittsburgh, 1950.

Kapp, F. T., Hornstein, S., and Graham, V. T. Some psychologic factors in prolonged labour due to inefficient uterine action. Comparative Psychiatry, 1963, 4, 9.

Karson, S., and Pool, K. B. Second-order factors in personality measurement. Journal of Consulting Psychology, 1958, 22, 299-303.

Kelly, J. V. The effect of fear upon uterine motility. American Journal of Obstetrics and Gynecology, 1962, 83, 576-581.

Kierkegaard, S. The concept of dread. Translated by W. Lowrie. Princeton, New Jersey: Princeton University Press, 1944.

Kiernan, A. J. The psychology of pregnancy. Irish Journal of Medical Science, 1964, 6, 43.

Kitzinger, S. Childbirth by appointment. New Behaviour, 5 June, 1975.

Klatskin, E. H., and Eron, L. D. Projective test content during pregnancy and postpartum adjustment. Psychosomatic Medicine, 1970, 32, 487.

Klein, H. R., Potter, H. W., and Dyk, R. B. Anxiety in pregnancy and childbirth. New York: Hoeber, 1950.

Klopfer, F. J., Cogan, R., and Henneborn, W. J. Second stage medical intervention and pain during childbirth. Journal of Psychosomatic Research, 1975, 19, 289-293.

Klusman, L. E. Reduction of pain in childbirth by the alleviation of anxiety during pregnancy. Journal of Consulting and Clinical Psychology, 1975, 43, 162-165.

Knapp, R. K., Kause, R. H., and Perkins, C. C. Immediate vs delayed shock in T-maze performance. Journal of Experimental Psychology, 1959, 58, 357-362.

Krech, D., Crutchfield, R. S., and Ballachey, E. L. Individual in society. Tokyo: McGraw-Hill Kogakusha, 1962, International Student Edition.

Kroger, W. S. (Ed.) Psychosomatic obstetrics, gynecology and endocrinology. Springfield, Illinois: Thomas, 1962.

L

Lamaze, F. Qu'est-ce que l'accouchement sans douleur. Paris: Editions La Farandole, 1956.

Lamaze, F. Painless childbirth, psychoprophylactic method. Translated by L. R. Celestin. Chicago: Henry Regnery, 1958.

Lange, L. Neue experimente uber den vorgang der einfachen reaktion auf sinneseindrucke. Philos. Stud., 1888, 4, 479-510.

Lazarus, R. S. Psychological stress and the coping process. New York: McGraw-Hill, 1966.

Lazarus, R. S., and Averill, J. R. Emotion and cognition: with special reference to anxiety. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 2.

Levi, L. The unipary output of adrenalin and noradrenalin during pleasant and unpleasant emotional states. Psychosomatic Medicine, 1965, 27, 80-85.

Levitt, E. E. Psychology of anxiety. New York: Bobbs-Merrill, 1967.

Levitt, E. E., and Persky, H. Experimental evidence for the validity of the I.P.A.T. anxiety scale. Journal of Clinical Psychology, 1962, 18, 458-461.

Levy, J. M., and McGee, R. K. Childbirth as a crisis: a test of Janis's theory of communication and stress resolution. Journal of Personality and Social Psychology, 1975, 31(1), 171-179.

Lidell, H. S. The role of vigilance in the development of animal neurosis. In P. H. Hoch and J. Zubin (Eds.), Anxiety. New York: Hafner, 1964, pages 183-196.

Lilienfeld, A. M., and Parkhurst, E. Study of association of factors of pregnancy and parturition with development of cerebral palsy: preliminary report. American Journal of Hygiene, 1951, 53, 262-282.

Lilienfeld, A. M., and Pasamick, B. Association of maternal and fetal factors with development of cerebral palsy and epilepsy. American Journal of Obstetrics and Gynecology, 1955, 70, 93-101.

Lubin, B., Gardener, S. H., and Roth, A. Mood and somatic symptoms during pregnancy. Psychosomatic Medicine, 1975, 37(2), 136-146.

M

Mandelbrote, B. M., and Muro, M. Neurotic illness as a factor in reproduction. Acta Psychiatrica Scandanavica, 1964, 40, 419.

Mandler, G., and Watson, D. L. Anxiety and the interruption of behavior. In C. D. Spielberger (Ed.), Anxiety and behavior. New York and London: Academic Press, 1966.

Mandler, G. Helplessness: theory and research in anxiety. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York: Academic Press, 1972.

Mandy, A. J. The psychic aspects of sterility and abortion. Southern Medical Journal, 1951, 44, 1054.

Mann, E. C. Psychiatric investigation of habitual abortion. Obstetrics and Gynecology, 1956, 7, 589.

Maslow, A. H. Toward a psychology of being. New York: Van Nostrand, 1968 (2nd ed.).

Maslow, A. H. Motivation and personality. New York: Harper and Row, 1970 (2nd ed.).

May, R. The meaning of anxiety. New York: Ronald Press, 1950.

May, R. (Ed.). Existential psychology. New York: Random House, 1961.

McConnel, O. L., and Daston, P. G. Body image changes in pregnancy. Journal of Projective Techniques, 1961, 25, 451-456.

McDonald, R. L. Fantasy and the outcome of pregnancy. Archives of General Psychiatry, 1965, 12, 602.

McDonald, R. L. The role of emotional factors in obstetric complications: a review. Psychosomatic Medicine, 1968, 30, 222-237.

McDonald, R. L., and Christakos, A. C. Relationship of emotional adjustment during pregnancy to obstetric complications. American Journal of Obstetrics and Gynecology, 1963, 86, 341-348.

McDonald, R. L., and Gynther, M. D. Relations between self and parental perceptions of unwed mothers and obstetric complications. Psychosomatic Medicine, 1965, 27, 31.

McDonald, R. L., Gynther, M. D., and Christakos, A. C. Relations between maternal anxiety and obstetric complications. Psychosomatic Medicine, 1963, 23, 357.

McDonald, R. L., and Parham, K. J. Relation of emotional changes during pregnancy to obstetric complications in unwed primigravidae. American Journal of Obstetrics and Gynecology, 1964, 90, 195.

McFarland, R. A., and Seitz, C. P. A psychosomatic inventory. Journal of Applied Psychology, 1938, 22, 327.

McNeil, T. F., and Kaij, L. Obstetric notations of mental or behavioural disturbance. Journal of Psychosomatic Research, 1973, 17(3), 175.

McReynolds, P. Anxiety, perception and schizophrenia. In D. Jackson (Ed.), The etiology of schizophrenia. New York: Basic Books, 1960, pages 248-292.

Mead, M. Male and female: a study of the sexes in a changing world. New York: William Morrow, 1949.

Meares, R., Grimwade, J., Bickley, M., and Wood, C. Pregnancy and neuroticism. Medical Journal of Australia, 1972, 1, 517-520.

Melges, F. T. Postpartum psychiatric syndromes. Psychosomatic Medicine, 1968, 30(1), 95-108.

Miller, N. E. Learnable drives and rewards. In S. S. Stevens (Ed.), Handbook of experimental psychology. New York: Wiley, 1951, pages 435-472.

Miller, W. B. Relationship between the intendedness of conception and the wantedness of pregnancy. Journal of Nervous and Mental Disease, 1974, 159, 396-406.

Moir, H. Indications and contraindications to epidural analgesia in labour - with special reference to the management of severe pre-eclampsia in labour. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Moore, D. C. Anaesthetic techniques for obstetrical anaesthesia and analgesia. Springfield, Illinois: Charles C. Thomas, 1964.

Morris, N. (Ed.). Psychosomatic medicine in obstetrics and gynaecology, 3rd international congress. London: Steinel Basel, 1972.

Mowrer, O. H. A stimulus-response analysis of anxiety and its role as a reinforcing agent. Psychological Review, 1939, 46, 553-565.

Mowrer, O. H. Learning theory and personality dynamics. New York: Ronald Press, 1950.

Moya, F., and Thorndike, V. Passage of drugs across the placenta. American Journal of Obstetrics and Gynecology, 1962, 84, 1778-1798.

N

Newton, N. Maternal emotions. New York: Hober, 1955.

Nilsson, A. Paranatal emotional adjustment: a prospective investigation of 165 women. I: A general account of background variables, attitudes towards childbirth, and an appreciation of psychiatric morbidity. Acta Psychiatrica Scandanavica, 1970, Supplement 220, pages 7-61.

O

Osgood, C. E., and Tannenbaum, P. H. The principle of congruity in the prediction of attitude change. Psychological Review, 1955, 62, 42-55.

Ostwald, P. F., and Regan, P. F. Psychiatric disorders associated with childbirth. Journal of Nervous and Mental Disease, 1957, 125, 153.

P

Page, E. W. Transfer of materials across the human placenta. American Journal of Obstetrics and Gynecology, 1957, 74, 705-718.

Palmer, R. Vomiting in pregnancy. Journal of Psychosomatic Research, 1973, 17, 303.

Parks, J. Emotional reactions to pregnancy. American Journal of Obstetrics and Gynecology, 1951, 62, 339-345.

Pavlov, I. P. Conditioned reflexes. Translated by G. V. Anrep. London: Oxford University Press, 1927.

Pavlov, I. P. Lectures on conditioned reflexes. Translated by W. H. Gantt. New York: International Publishers, 1928.

Pavlov, I. P. Conditioned reflexes and psychiatry. Translated by W. H. Gantt. New York: International Publishers, 1941.

Pearson, J. F. The effect of continuous lumbar epidural block on maternal and foetal acid-base balance during labour and at delivery. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Pepitone, A. Motivational effects in social perception. Human Relations, 1950, 3, 57-76.

Pilowsky, I., and Sharp, J. Psychological aspects of pre-eclamptic toxaemia: a prospective study. Journal of Psychosomatic Research, 1971, 15, 193.

Pines, D. Pregnancy and motherhood: interaction between fantasy and reality. British Journal of Medical Psychology, 1972, 45, 333-343.

Pion, R. J., Golden, J. S., and Caldwell, A. B. Prenatal care: a group psychotherapeutic approach. California Medicine, 1962, 97, 281-285.

Pleshette, S., Asch, S. S., and Chase, J. A study of anxieties during pregnancy, labor, the early and late puerperium. Bulletin of the New York Academy of Medicine, 1956, 32, 436.

R

Rank, O. The trauma of birth. New York: Harcourt, Brace, 1929.

Rapoport, R. Normal crises: family structure and mental health. Family Process, 1963, 2, 68-80.

Read, G. Dick. Childbirth without fear. New York: Harper, 1953.

Reynolds, F. The influence of adrenaline on maternal and neonatal blood levels of local analgesic drugs. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Rheingold, J. C. The fear of being a woman. New York: Grune and Stratton, 1964.

Richardson, S. A., and Guttmacher, A. F. (Eds.), Childbearing: its social and psychological aspects. New York: Williams and Wilkins, 1967.

Ringrose, C. A. D. Psychosomatic influence in the genesis of toxaemia of pregnancy. Canadian Medical Association Journal, 1961, 84, 647.

Robin, A. A. The psychological changes of normal parturition. Psychiatric Quarterly, 1962, 36, 129.

Rogers, C. R. Client-centred therapy. Boston, Massachusetts: Houghton, Mifflin, 1951.

Rosen, S. Emotional factors in nausea and vomiting of pregnancy. Psychiatric Quarterly, 1955, 29, 621.

Rosengren, W. R. Some social psychological aspects of delivery room difficulties. Journal of Nervous and Mental Disease, 1961, 132, 515.

Rosengren, W. R. Social instability and attitudes towards pregnancy as a social role. Social problems, 1962, 9, 371-378.

S

Salerno, L. J. Psychophysiologic aspects of toxemias of pregnancy. American Journal of Obstetrics and Gynecology, 1958, 76, 1268.

Schachter, S. The interaction of cognitive and physiological determinants of emotional states. In L. Berkowitz (Ed.), Advances in experimental social psychology. New York: Academic Press, 1964, volume 1.

Schachter, S. The interaction of cognitive and physiological determinants of emotional state. In C. D. Spielberger (Ed.), Anxiety and behaviour. New York and London: Academic Press, 1966, pages 193-224.

Scheier, I. H., and Cattell, R. B. Confirmation of objective test factors and assessment of their relation to questionnaire factors; a factor analysis of 113 rating, questionnaire and objective test measurements of personality. Journal of Mental Science, 1958, 104, 608-624.

Scott, D. B. Inferior vena caval occlusion during epidural block. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Scott, E. M., Illsley, R., and Biles, M. E. A psychological investigation of primigravidae. III: Some aspects of maternal behaviour. Journal of Obstetrics and Gynaecology of the British Empire, 1956, 63, 494.

Scott, E. M., Illsley, R., and Thomson, A. M. A psychological investigation of primigravidae. II: Maternal social class, age, physique and intelligence. Journal of Obstetrics and Gynaecology of the British Empire, 1956, 63, 338.

Scott, E. M., and Thomson, A. M. A psychological investigation of primigravidae. I: Methods. Journal of Obstetrics and Gynaecology of the British Empire, 1956, 63, 331.

Scott, E. M. and Thomson, A. M. A psychological investigation of primigravidae. IV: Psychological factors and the clinical phenomena of labour. Journal of Obstetrics and Gynaecology of the British Empire, 1956, 63, 502.

Shainess, N. Psychological problems associated with motherhood. In S. Arieti (Ed.), Handbook of American Psychiatry. New York: Basic Books, 1966, pages 47-65.

Shereshefsky, P. M., and Yarrow, L. J. Psychological aspects of a first pregnancy and early postnatal adaptation. New York: Raven Press, 1973.

Shostrom, E. L. An inventory for the measurement of self-actualization. Educational and Psychological Measurement, 1964, 24, 207-218.

Siegel, S. Nonparametric statistics for the behavioural sciences. Tokyo: McGraw-Hill Kogakusha, International Student Edition, 1956.

Simpson, B. R. J. Epidural analgesia and foetal welfare. In A. Doughty (Ed.), Proceedings of the symposium on epidural analgesia in obstetrics. London: H. K. Lewis, 1971.

Sinton, I. Epidural blocks in labour. In Proceedings of the Congress of the Paramedical Association for Childbirth Education, Johannesburg, South Africa, 1972.

Sontag, L. W. Differences in modifiability of fetal behavior and physiology, Psychosomatic Medicine, 1944, 6, 151-154.

Spielberger, C. D. (Ed.), Anxiety and behaviour. New York and London: Academic Press, 1966.

Spielberger, C. D. Anxiety as an emotional state. In C. D. Spielberger (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volume 1.

Spielberger, C. D. (Ed.), Anxiety - current trends in theory and research. New York and London: Academic Press, 1972, volumes 1 and 2.

Spielberger, C. D., and Sarason, I. G. (Eds.), Stress and anxiety. Washington, D. C.: Hemisphere, 1975, volume 1.

Spiesman, J. C., Lazarus, R. S., Morokoff, A. M., and Davison, L. A. Experimental reduction of pain based on ego-defence theory. Journal of Abnormal and Social Psychology, 1964, 68, 367-380.

Squier, R., and Dunbar, F. Emotional factors in the course of pregnancy. Psychosomatic Medicine, 1946, 8, 151.

Staub, E., Tursky, B., and Schwartz, G. E. Self-control and predictability: their effects on reactions to aversive stimulation. Journal of Personality and Social Psychology, 1971, 18, 157-162.

Stewart, D. B., and Scott, E. M. The assessment of efficiency in labour; psychological factors related to labour. Edinburgh Medical Journal, 1953, 60, 49.

Stone, M. L., Piliero, S. J., Hammer, H., and Portnoy, A. Epinephrine and norepinephrine in pregnancy. Obstetrics and Gynecology, 1960, 16, 674-678.

Stott, D. H. Psychological and mental handicaps in the child following a disturbed pregnancy. Lancet, 1957, 1, 1006.

Stott, D. H. Some psychosomatic aspects of casualty in reproduction. Journal of Psychosomatic Research, 1958, 3, 42.

Straker, M. Psychological factors during pregnancy and childbirth. Canadian Medical Association Journal, 1954, 70, 510-514.

Swartz, D. P., Box, B., and Stevenson, J. A. F. Epinephrine and norepinephrine in normal and abnormal pregnancy. Obstetrics and Gynecology, 1963, 22, 115-117.

T

Tanzer, D. Natural childbirth: pain or peak experience? Psychology Today, 1968, 2(5), 17.

Tetlow, C. Psychoses of childbearing. Journal of Mental Science, 1955, 101, 629.

Tupper, C., and Weil, R. J. The problem of spontaneous abortion. IX: The treatment of habitual aborters by psychotherapy. American Journal of Obstetrics and Gynecology, 1962, 83, 421-424.

Turner, E. K. The syndrome in the infant resulting from maternal emotional tension during pregnancy. Medical Journal of Australia, 1956, 1, 221-222.

U

Uddenberg, N., and Hakanson, M. Aniseikonic body perception in pregnancy. Journal of Psychosomatic Research, 1972, 16(3), 179.

Uddenberg, N., Nilsson, A., and Almgren, P. E. Nausea in pregnancy: psychological and psychosomatic aspects. Journal of Psychosomatic Research, 1971, 15, 269-276.

W

Watson, A. S. A psychiatric study of idiopathic prolonged labour. Obstetrics and Gynecology, 1959, 13, 598.

Weil, R. J., and Tupper, C. Personality, life situation and communication; a study of habitual abortion. Psychosomatic Medicine, 1960, 22, 448.

Wenner, N. K., Cohen, M. B., Weigert, E. V., Kvarnes, R. G., Ohaneson, E. M., and Fearing, J. M. Emotional problems in pregnancy. Psychiatry, 1969, 32, 389-409.

Wilkinson, B. A statistical consideration in psychological research. Psychological Bulletin, 1950, 48, 2, 156-158.

Williams, C. C., Williams, R. A., Griswold, M. J., and Holmes, T. H. Pregnancy and life change. Journal of Psychosomatic Research, 1975, 19(2).

Wilson, M. G. The effect of maternal medications upon the fetus and the newborn infant. American Journal of Obstetrics and Gynecology, 1962, 83, 818-825.

Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1971 (2nd ed.).

Winget, C., and Kapp, F. T. The relationship of the manifest content of dreams to duration of childbirth in primiparae. Psychosomatic Medicine, 1972, 34, 313.

Wolkind, S. N. Psychological factors and the minor symptoms of pregnancy. Journal of Psychosomatic Research, 1974, 18, 161-166.

Z

Zemlick, M. J., and Watson, R. I. Maternal attitudes of acceptance and rejection during and after pregnancy. American Journal of Orthopsychiatry, 1953, 23, 570.

Zuckerman, M., Nurnberger, J. I., Gardiner, S. H., Vandeveer, J. M., Barret, G. H., and Den Breeijan, A. Psychological correlates of somatic complaints in pregnancy and difficulty in childbirth. Journal of Consulting Psychology, 1963, 27, 324-329.

APPENDIX 1

Item by item analysis of the questionnaire for primi- and multiparae

Section 2

Q1 Safety for the baby of labour under epidural anaesthesia

	Primiparae		Multiparae		Total
	0	e	0	e	
Safe	13	(13.33)	27	(26.67)	40
Unsafe	1	(0.67)	1	(1.33)	2

Fisher exact probability o.46 nonsignificant

Q3 Safety for the baby of normal labour

Safe	26	(23.27)	38	(40.73)	64
Unsafe	2	(4.73)	11	(8.27)	13

Fisher exact probability 0.08 nonsignificant

Q6 Safety for the mother of labour under epidural anaesthesia

Safe	13	(13.32)	26	(25.68)	39
Unsafe	1	(0.68)	1	(1.32)	2

Fisher exact probability 0.57 nonsignificant

Q10 Safety for the mother of normal labour

Safe	27	(26.55)	46	(46.45)	73
Unsafe	1	(1.45)	3	(2.55)	4

Fisher exact probability 0.35 nonsignificant

Q8 Painfulness of labour under epidural anaesthesia

Less painful	14	(14)	27	(27)	41
More painful	0	(0)	0	(0)	0

No statistical comparison possible since no subjects in the 'more painful' category.

Section 2

Q1 Safety for the baby of labour under epidural anaesthesia

	Primiparae		Multiparae		Total
	O	e	O	e	
Safe	13	(13.33)	27	(26.67)	40
Unsafe	1	(0.67)	1	(1.33)	2

Fisher exact probability o.46 nonsignificant

Q3 Safety for the baby of normal labour

Safe	26	(23.27)	38	(40.73)	64
Unsafe	2	(4.73)	11	(8.27)	13

Fisher exact probability 0.08 nonsignificant

Q6 Safety for the mother of labour under epidural anaesthesia

Safe	13	(13.32)	26	(25.68)	39
Unsafe	1	(0.68)	1	(1.32)	2

Fisher exact probability 0.57 nonsignificant

Q10 Safety for the mother of normal labour

Safe	27	(26.55)	46	(46.45)	73
Unsafe	1	(1.45)	3	(2.55)	4

Fisher exact probability 0.35 nonsignificant

Q8 Painfulness of labour under epidural anaesthesia

Less painful	14	(14)	27	(27)	41
More painful	0	(0)	0	(0)	0

No statistical comparison possible since no subjects in the 'more painful' category.

Q2 Painfulness of normal labour

	Primiparae		Multiparae		Total
	O	e	O	e	
Less painful	4	(6.18)	13	(10.82)	17
More painful	24	(21.82)	36	(38.18)	60

Chi-squared corrected 0.92 nonsignificant

Q5 Painfulness of administration of epidural anaesthesia

Less painful	9	(10.40)	19	(17.60)	28
More painful	4	(2.60)	3	(4.40)	7

Fisher exact probability 0.21 nonsignificant

Q4 The experience of labour under epidural anaesthesia

Good	13	(13.32)	26	(25.68)	39
Bad	1	(0.68)	1	(1.32)	2

Fisher exact probability 0.57 nonsignificant

Q16 The experience of normal labour

Good	26	(24.32)	40	(41.68)	66
Bad	2	(3.68)	8	(6.32)	10

Fisher exact probability 0.22 nonsignificant

Q12 Image of the woman choosing routine epidural anaesthesia

Favourable	9	(11.33)	25	(22.67)	34
Unfavourable	4	(1.67)	1	(3.33)	5

Fisher exact probability 0.03 significant at the .05 level

Q9 Cost of the epidural anaesthetic

	Primiparae		Multiparae		Total
	O	e	O	e	
Inexpensive	0	(0.70)	2	(1.29)	2
Expensive	13	(12.29)	22	(22.70)	35

Fisher exact probability 0.41 nonsignificant

Q15 Necessity of suffering normal labour if epidural anaesthesia is available

Positive	8	(4.23)	5	(8.78)	13
Negative	5	(8.78)	22	(18.23)	27

Fisher exact probability 0.002 significant at the .05 level

Q7 The influence of the mother's experience of labour on her baby

Much	16	(18.88)	34	(31.82)	50
Little	12	(9.82)	15	(17.18)	27

Chi-squared corrected 0.69 nonsignificant

Q13 The influence of the mother's experience of labour on her life

Much	23	(22.55)	39	(39.45)	62
Little	5	(5.45)	10	(9.55)	15

Chi-squared corrected 0.00 nonsignificant

Q11 Pain tolerance

Low	2	(2.60)	5	(4.40)	7
High	27	(26.40)	44	(44.60)	71

Fisher exact probability 0.48 nonsignificant

Q14 Ability to cope with normal labour

	Primiparae		Multiparae		Total
	0	e	0	e	
Good	26	(24.54)	40	(41.46)	66
Poor	3	(4.46)	9	(7.54)	12

Fisher exact probability 0.53 nonsignificant

Section 3

Q1 Headaches

Infrequent	20	(20.08)	34	(33.92)	54
Frequent	9	(8.92)	15	(15.08)	24

Chi-squared corrected 0.05 nonsignificant

Q2 Constipation and Diarrhea

Infrequent	15	(14.87)	25	(25.13)	40
Frequent	14	(14.13)	24	(23.87)	38

Chi-squared corrected 0.13 nonsignificant

Q3 Dizziness or fainting spells

Infrequent	23	(23.05)	39	(38.95)	62
Frequent	6	(5.95)	10	(10.05)	16

Chi-squared corrected 0.07 nonsignificant

Q4 General health

Good	29	(27.88)	46	(47.12)	75
Poor	0	(1.12)	3	(1.88)	3

Fisher exact probability 0.38 nonsignificant

Q5 Palpitations

	Primiparae		Multiparae		Total
	0	e	0	e	
Infrequent	23	(21.56)	35	(36.44)	58
Frequent	6	(7.44)	14	(12.56)	20

Chi-squared corrected 0.25 nonsignificant

Q6 Weight gain

Normal	20	(17.69)	26	(28.31)	46
Excessive	10	(12.31)	22	(19.69)	32

Chi-squared corrected 0.73 nonsignificant

Q7 Perception of foetal movement

Favourable	24	(24.48)	41	(40.52)	65
Unfavourable	5	(4.52)	7	(7.48)	12

Fisher probability greater than 0.24 nonsignificant

Q8 Nausea

Infrequent	21	(20.45)	34	(34.55)	55
Frequent	8	(8.55)	15	(14.44)	23

Chi-squared corrected 0.00 nonsignificant

Q9 Tiredness

Infrequent	6	(3.72)	4	(6.28)	10
Frequent	23	(25.28)	45	(42.72)	68

Fisher exact probability 0.11 nonsignificant

Q10 Sleeping problems

Infrequent	22	(21.94)	37	(37.06)	59
Frequent	7	(7.06)	12	(11.94)	19

Chi-squared corrected 0.06 nonsignificant

Q11 Perception of pregnant women

	Primiparae		Multiparae		Total
	O	e	O	e	
Favourable	18	(20.45)	37	(34.55)	55
Unfavourable	11	(8.55)	12	(14.45)	23

Chi-squared corrected 1.00 nonsignificant

Q12 Emotional state during pregnancy

Less anxious	15	(13.01)	20	(21.99)	35
More anxious	14	(15.99)	29	(27.01)	43

Chi-squared corrected 0.49 nonsignificant

Q13 Emotional state normally

Less anxious	15	(16.36)	29	(27.64)	44
More anxious	14	(12.64)	20	(21.36)	34

Chi-squared corrected 0.16 nonsignificant

Q14 Effect of the offer of routine epidural anaesthesia

Less anxious	1	(2.33)	6	(4.67)	7
Other response	13	(11.67)	22	(23.33)	35

Fisher probability .24 nonsignificant

Q15 Opinion on routine epidural anaesthesia

a	1	(2.00)	5	(4.00)	6
b	11	(8.33)	14	(16.67)	25
c	2	(3.67)	9	(7.33)	11

Chi-squared 3.17 nonsignificant

Section 2

Question	Result
1	Fisher probability 0.46 nonsignificant
3	Fisher probability 0.08 nonsignificant
6	Fisher probability 0.57 nonsignificant
10	Fisher probability 0.35 nonsignificant
8	Unsuitable for statistical analysis
2	Chi-squared corrected 0.92 nonsignificant
5	Fisher probability 0.21 nonsignificant
4	Fisher probability 0.57 nonsignificant
16	Fisher probability 0.22 nonsignificant
12	Fisher probability 0.03 significant at the .05 level
9	Fisher probability 0.41 nonsignificant
15	Fisher probability 0.002 significant at the .05 level
7	Chi-squared corrected 0.69 nonsignificant
13	Chi-squared corrected 0.00 nonsignificant
11	Fisher probability 0.48 nonsignificant
14	Fisher probability 0.53 nonsignificant

Section 3

1	Chi-squared corrected 0.05 nonsignificant
2	Chi-squared corrected 0.13 nonsignificant
3	Chi-squared corrected 0.07 nonsignificant
4	Fisher probability 0.38 nonsignificant
5	Chi-squared corrected 0.25 nonsignificant
6	Chi-squared corrected 0.73 nonsignificant
7	Fisher probability greater than 0.24 nonsignificant

Question	Result
8	Chi-squared corrected 0.00 nonsignificant
9	Fisher probability 0.11 nonsignificant
10	Chi-squared corrected 0.06 nonsignificant
11	Chi-squared corrected 1.00 nonsignificant
12	Chi-squared corrected 0.49 nonsignificant
13	Chi-squared corrected 0.16 nonsignificant
14	Fisher probability 0.24 nonsignificant
15	Chi-squared 3.17 nonsignificant

APPENDIX 2

Questionnaire; long form for groups 1, 2 and 3

Questionnaire

Thank you very much for taking part in this study. We are trying to find out more about how women feel during pregnancy, in order to understand and help pregnant women more effectively in future. In order to get many different opinions we are asking a large number of pregnant women to take part in this study. We want to know your opinions on various aspects of pregnancy and labour, and your own experiences during this pregnancy.

The questions are divided into four sections. Please answer them frankly; your answers are strictly confidential, and will not be divulged to anyone, including your doctor. You may remain anonymous if you wish - each questionnaire has a code name. Please answer all the questions and feel free to add any comments which you think will help us.

SECTION 1

GENERAL

1. Name (optional) .....
2. Date of birth .....
3. Schooling. Please tick a, b, c or d.
   a. obtained diploma or degree
   b. finished J.C.
   c. matriculated
   d. attended college or university
4. Occupation (before this pregnancy) .....
5. Husband's occupation .....
6. Where do you live? (suburb and town).....

7. Date of marriage .....

8. How many children do you have? .....

Age	Sex
.....	.....
.....	.....
.....	.....

9. How many pregnancies have you had? (including this one) .....

10. a. Have you ever had an epidural? Yes ..... No .....

    b. Are you going to have this baby under epidural?

    Yes ..... No ..... Undecided .....

11. When did you know that an epidural would be available to you?

    Tick a, b, c, or d.

    a. I knew that an epidural was available from this doctor before I consulted him

    b. First three months of pregnancy

    c. Three to six months pregnancy

    d. After six months pregnancy

12. When did you decide definitely to have or not to have an epidural?

    a. still undecided

    b. before three months pregnancy

    c. three to six months pregnancy

    d. after six months pregnancy

13. Do you attend antenatal classes? Yes ..... No .....

    If yes, who is your antenatal therapist .....

14. What is your baby's due date? .....

SECTION 2

YOUR OPINIONS

Please tick a, b, c or d, whichever is closest to your own opinion.

1. For the baby, labour under epidural is
   a. very safe
   b. very dangerous
   c. risky
   d. fairly safe
2. Normally, for the mother, labour is
   a. extremely painful
   b. painless
   c. painful
   d. uncomfortable
3. Generally, for the baby, labour is
   a. risky
   b. fairly safe
   c. very dangerous
   d. very safe
4. Labour under an epidural is
   a. an unbearable experience
   b. a bearable experience
   c. an unpleasant experience
   d. a fulfilling experience

5. When the anaesthetist administers the epidural it feels

   a. uncomfortable

   b. painless

   c. painful

   d. extremely painful

6. For the mother, labour under epidural is

   a. very safe

   b. risky

   c. very dangerous

   d. fairly safe

7. The mother's experiences during labour influence her relationship with her baby

   a. very little

   b. quite a bit

   c. not at all

   d. very much

8. For the mother, labour under epidural is

   a. painless

   b. uncomfortable

   c. painful

   d. very painful

9. An epidural is

   a. inexpensive

   b. very expensive

   c. expensive

   d. very inexpensive

10. Generally, for the mother, labour is

    a. fairly safe

    b. very safe

    c. risky

    d. very dangerous

11. I can stand

    a. very little pain

    b. great pain

    c. some pain

    d. no pain

12. In general, the woman who has an epidural is

    a. sensible

    b. weak

    c. neurotic

    d. modern

13. The mother's experiences during labour affect the rest of her life

    a. quite a bit

    b. very much

    c. not at all

    d. very little

14. With a normal labour I feel I would cope

    a. very badly

    b. badly

    c. well

    d. very well

15. When an epidural is available, to suffer the pain of labour is

    a. unnecessary

    b. still necessary

    c. stupid

    d. brave

16. For the mother, labour is normally

    a. an unpleasant experience

    b. a bearable experience

    c. an unbearable experience

    d. a fulfilling experience

SECTION 3

YOUR OWN EXPERIENCES

1. Have you been bothered by headaches during this pregnancy?

    a. never

    b. often

    c. rarely

    d. sometimes

2. Have you been bothered by constipation or diarrhea during this pregnancy?

    a. sometimes

    b. never

    c. rarely

    d. often

3. Have you been bothered by dizziness or fainting spells during this pregnancy?

    a. never

    b. rarely

c. often

d. sometimes

4. In general, how has your health been during this pregnancy?

a. quite good

b. very good

c. quite bad

d. very bad

5. Have you been bothered by palpitations during this pregnancy?

a. never

b. often

c. sometimes

d. rarely

6. How much weight have you gained during this pregnancy?

a. under 25 lbs.

b. 25 to 35 lbs.

c. 35 to 45 lbs.

d. over 45 lbs.

7. In general, how does it feel when the baby moves?

a. uncomfortable

b. quite pleasant

c. delightful

d. painful

8. How much of a problem has nausea been during this pregnancy?

a. nausea has been no problem

b. there has been severe nausea part of the time

c. there has been severe nausea most of the time

d. there has been mild nausea part of the time

9. Have you been bothered by tiredness during this pregnancy?

   a. sometimes

   b. never

   c. rarely

   d. often

10. In general, how well have you slept during this pregnancy?

   a. quite badly

   b. very well

   c. quite well

   d. very badly

11. How do pregnant women look to you?

   a. quite attractive

   b. gorgeous

   c. very ugly

   d. rather unattractive

12. On the whole, how have you felt emotionally during this pregnancy?

   a. calm

   b. extremely anxious

   c. slightly anxious

   d. exceptionally calm

13. When you are not pregnant, are you generally

   a. an extremely anxious person

   b. a calm person

   c. an exceptionally calm person

   d. a slightly anxious person

14. Did the fact that you were offered an epidural affect your emotional state during this pregnancy?

    a. it had no effect

    b. it made me generally more anxious

    c. it made me generally less anxious

    d. can't say

    Please elaborate on your answer if you feel the offer of an epidural affected your emotional state in some way:

    .....

    .....

    .....

15. What is your opinion on the use of routine epidurals?

    a. The doctor should decide who must have an epidural

    b. Every woman should be offered an epidural

    c. The doctor should decide who should be offered an epidural

    d. Every woman should have an epidural

SECTION 4

We are interested in finding out the opinions of a cross section of the population on epidurals. In the following section please indicate the opinions of the person indicated as to whether or not they think you should have an epidural. For example, if, in your opinion, your religious minister thinks you should have an epidural tick column 1. If he thinks you should not have an epidural, tick column 2. If you think he has no opinion on the matter, tick column 3. If you think he probably has an opinion on the matter but you don't know what his opinion may be, tick column 4. Even if you have not discussed epidurals with the person indicated, we would like to know what you think their opinion is.

	Thinks I should have an epidural	Thinks I should not have an epidural	Has no opinion on epidural	I don't know the opinion
MOTHER				
FATHER				
HUSBAND				
ANTENATAL THERAPIST				
OBSTETRICIAN				
G.P. OR FAMILY DOCTOR				
MOTHER IN LAW				
FATHER IN LAW				
RELIGIOUS MINISTER				
FRIEND OR RELATIVE:				
1. who has had an epidural				
2. " " " " "				
3. " " " " "				
4. " " " " "				
5. who has had babies without epidural				
6. " " " " " "				
7. " " " " " "				
8. " " " " " "				
9. who has not had a baby				
10. " " " " " "				
11. " " " " " "				
12. " " " " " "				

Please add any comments which you think may help us

.....

.....

.....

.....

.....

.....

APPENDIX 3

Questionnaire: short form for group 4

Questionnaire

Thank you very much for taking part in this study. We are trying to find out more about how women feel during pregnancy, in order to understand and help pregnant women more effectively in future. In order to get many different opinions we are asking a large number of pregnant women to take part in this study. We want to know your opinions on various aspects of pregnancy and labour, and your own experiences during this pregnancy.

The questions are divided into three sections. Please answer them frankly; your answers are strictly confidential, and will not be divulged to anyone, including your doctor. You may remain anonymous if you wish - each questionnaire has a code name. Please answer all the questions and feel free to add any comments which you think will help us.

SECTION 1

GENERAL

1. Name (optional) .....
2. Date of birth .....
3. Schooling. Please tick a, b, c or d.
   a. obtained diploma or degree
   b. finished J.C.
   c. matriculated
   d. attended college or university
4. Occupation (before this pregnancy)
5. Husband's occupation .....

6. Where do you live? (suburb and town) .....

7. Date of marriage .....

8. How many children do you have? .....

Age	Sex
.....	.....
.....	.....
.....	.....

9. How many pregnancies have you had? (including this one) .....

10. Do you know what an epidural is? Yes ..... No .....

11. Have you ever had an epidural? Yes ..... No .....

12. When is your baby due .....

SECTION 2

YOUR OPINIONS

1. Normally, for the mother, labour is

   a. extremely painful

   b. painless

   c. painful

   d. uncomfortable

2. Generally, for the baby, labour is

   a. risky

   b. fairly safe

   c. very dangerous

   d. very safe

3. The mother's experiences during labour influence her relationship with her baby

   a. very little

   b. quite a bit

c. not at all

d. very much

4. Generally, for the mother, labour is

a. fairly safe

b. very safe

c. risky

d. very dangerous

5. I can stand

a. very little pain

b. great pain

c. some pain

d. no pain

6. The mother's experiences during labour affect the rest of her life

a. quite a bit

b. very much

c. not at all

d. very little

7. With a normal labour I feel I would cope

a. very badly

b. badly

c. well

d. very well

8. For the mother, labour is normally

a. an unpleasant experience

b. a bearable experience

c. an unbearable experience

d. a fulfilling experience

SECTION 3

YOUR OWN EXPERIENCES

1. Have you been bothered by headaches during this pregnancy?

   a. never

   b. often

   c. rarely

   d. sometimes

2. Have you been bothered by constipation or diarrhea during this pregnancy?

   a. sometimes

   b. never

   c. rarely

   d. often

3. Have you been bothered by dizziness or fainting spells during this pregnancy?

   a. never

   b. rarely

   c. often

   d. sometimes

4. In general, how has your health been during this pregnancy?

   a. quite good

   b. very good

   c. quite bad

   d. very bad

5. Have you been bothered by palpitations during this pregnancy?

   a. never

   b. often

   c. sometimes

   d. rarely

6. How much weight have you gained during this pregnancy?

   a. under 25 lbs.

   b. 25 to 35 lbs.

   c. 35 to 45 lbs.

   d. over 45 lbs.

7. In general, how does it feel when the baby moves?

   a. uncomfortable

   b. quite pleasant

   c. delightful

   d. painful

8. How much of a problem has nausea been during this pregnancy?

   a. nausea has been no problem

   b. there has been severe nausea part of the time

   c. there has been severe nausea most of the time

   d. there has been mild nausea part of the time

9. Have you been bothered by tiredness during this pregnancy?

   a. sometimes

   b. never

   c. rarely

   d. often

10. In general, how well have you slept during this pregnancy?

   a. quite badly

   b. very well

   c. quite well

   d. very badly

11. How do pregnant women look to you?

    a. quite attractive

    b. gorgeous

    c. very ugly

    d. rather unattractive

12. On the whole, how have you felt emotionally during this pregnancy?

    a. calm

    b. extremely anxious

    c. slightly anxious

    d. exceptionally calm

13. When you are not pregnant, are you generally

    a. an extremely anxious person

    b. a calm person

    c. an exceptionally calm person

    d. a slightly anxious person

Please add any comments which you think may help us

.....

.....

.....

.....

.....

.....