The Effect of Amniocentesis on Parental Anxiety and Self Concept

by

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Dissertation proposal submitted to the Faculty of the Graduate School of the University of Maryland in partial fulfillment of the requirements for the degree of Doctor of Philosophy
1981

APPROVAL SHEET

Title of Thesis: The Effect of Amniocentesis on Parental Anxiety and Self Concept

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ABSTRACT

Title of Dissertation: The Effect of Amniocentesis on Parental Anxiety and Self Concept

Maureen Mulroy Thomas, Doctor of Philosophy, 1981

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The purpose of this study was to provide prospective information about the psychological consequences of amniocentesis for both the husband and wife. Amniocentesis is a procedure in which a sample of amniotic fluid is withdrawn from the amniotic sac surrounding the fetus during the second trimester of pregnancy and which is then cultured and tested for the presence of biochemical and chromosomal defects in the fetus. By gathering anxiety and self concept data before and after the results of the amniocentesis were known and then comparing it to similar data collected from pregnant couples who did not opt for the amniocentesis procedure, it was hoped that the following research questions would be answered.

1. Do individuals' levels of anxiety and self concept change after receiving the results of the amniocenteses?

2. Are there differences in women's and men's levels of anxiety and self concept before or after receiving the results of the amniocenteses?

3. Are the levels of anxiety and self concept of couples who have amniocenteses different from the levels of anxiety and self concept of couples who are pregnant but who do not have amniocenteses?

There were two sources of data for this study. The first source was the treatment group which was composed of 25 women and their spouses who had an amniocentesis performed during the fifth month of pregnancy. The

second source of data was the comparison group which was composed of 25 women and their spouses who were pregnant but who did not have an amniocentesis performed. These two groups were comparable in terms of socioeconomic status, educational achievement, racial composition, and religious affiliation. Both groups were interviewed at home on two occasions and during these times thay were asked to describe their pregnancy experiences and to respond to the Institute of Personality and Ability Testing Anxiety Scale Questionaire and the Tennessee Self Concept Scale.

To determine if changes occur in the treatment group's anxiety and self concept scores after receiving the test results, correlated t-Tests were performed. It was found that there were no statistically significant changes in either the women's or men's level of anxiety and self concept after receiving negative amniocentesis results. Negative amniocentesis results mean that the fetus has been found to be free of certain genetic defects. To answer the second research question concerning differences in anxiety and self concept scores for the treatment women and men, a series of oneway analyses of variance were performed on the data. It was found that the treatment group women had statistically higher levels of anxiety then their spouses both before and after the results of the amniocentesis were known. In terms of the self concept, the analyses revealed no evidence of statistical differences between the amniocenteis women and men. To determine if there were differences in levels of anxiety and self concept for treatment and comparison group couples, another series of oneway analyses of variance were performed. It was found that there were no statistically significant differences between the treatment and comparison group women in terms of anxiety or self concept but there were statistically significant differences between the men. The treatment group men were found to be

significantly less anxious than the comparison group men both before and after receiving the negative amniocentesis results. In terms of self concept, the treatment group men were found to feel significantly more positive about themselves before the results of the amniocentesis were known but not after.

Based on this study's findings, it would seem that the degree of anxiety experienced by the amniocentesis couple during the waiting period is relative to the sex of the individual and is, at worst, no greater than that associated with being pregnant. It would also seem that in the early weeks after the diagnosis is known, negative amniocentesis results do little to reduce a couple's feelings of anxiety. Finally, it would seem that there is no decrease in a couple's self concept as a results of having an amniocentesis performed.

Explanations for the discrepancies between this study's findings and the amniocentesis literature were given. They were grouped into one of three categories-- psychological orientation of the couples, demographic variables, and study design differences. Suggestions were also given for improving the genetic counseling amniocentesis couples receive as a result of this study's findings and areas for further investigation were discussed.

DEDICATION

This paper is dedicated to my husband, Paul, for his invaluable help as a research assistant and for the love, concern, and understanding he showed me throughout this very long doctoral experience. It is also dedicated to my family who instilled in me the value of education and the belief that I could accomplish anything I wanted. May this be only the first of many successes for our family.

ACKNOWLEDGMENTS

I am indebted to all the members of my dissertation committee for the suggestions, assistance, and support they gave me throughout this past year. Individually, I would like to thank:

- Dr. Laura L. Dittmann for the guidance, encouragement, and good advice given throughout my four years as a doctoral student and for the unique opportunity she provided to learn how to be a competent and respected professional woman;

- Dr. Bonnie Tyler for the hugs of encouragement and her amusing insights into the academic world;

- Dr. Marylyn Bourque for the time she gave and the suggestions she made to make this dissertation a statistically sound one;

- Dr. Charles H. Flatter for his frequent inquiries about the study's progress and for sharing his personal insights about the amniocentesis process;

- Dr. Harry Green for his amazing way of knowing when to give quiet words of encouragement and uproariously funny ideas for relaxing.

Special thanks are also due Dr. Richard H. Heller for allowing me access to his amniocentesis clients and to his assistant Mrs. George who called faithfully every Monday morning with the names of prospective subjects and with words of encouragement.

Appreciation is also extended to Barbara Mertens and the other board members of Parents And Children who allowed me to get in touch with their natural childbirth enrollees. Without the assistance of this organization the very important comparison group would never have been found.

Finally, I would like to thank those 50 wonderful couples who opened their homes and hearts to me and my assistant.

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The Effect of Amniocentesis on Parental Anxiety and Self Concept

Background of the Problem

In a time span of 15 years, amniocentesis has gone from the realm of experimental research to the status of a standard prenatal diagnostic procedure (Hirschhorn, 1975). While it has been estimated that at present time less than 5% of pregnant women who could benefit by this procedure have it performed (Davis, 1979), there is evidence that suggests that the number of diagnoses by amniocentesis has been increasing at an annual rate of 78% (Selle, Holmes, & Ingbar, 1979). In fact, health care planners concerned by the ever increasing demand for these procedures are currently formulating models that will aid in predicting demands for amniocentesis for prospective patients in the year 2000 (Selle, et al., 1979).

Since the first reports of the usage of midtrimester amniocentesis for prenatal diagnoses of chromosomal and metabolic errors in the late nineteen sixties (Jackson & Barter, 1967; Nadler, 1968), scores of reports, books and articles have been written about the technical and ethical aspects of this procedure. One search of the literature for the years 1973 to 1975 prepared by the National Library of Medicine on the subject of amniocentesis listed over 300 citations which attested to the procedure's accuracy, safety, and sensitivity (Kenton, 1976). Surprisingly, little information has been available about the impact of such procedures on the participating couple (Duncan, Finley, & Finley, 1976). The information that does exist has indicated that amniocentesis is an emotionally as well as physically invasive procedure.

Globus, Conte, Schneider, and Epstein (1974) attempted to assess retrospectively the emotional impact of amniocentesis on 61 couples. Sixty-two percent of the women considered counseling prior to undergoing the procedure reassuring, and 15% felt it added to their concern. The waiting period of 3 to 4 weeks for test results created anxiety and impatience in over 50% of the women. Smaller numbers of patients experienced depression, bad dreams, and feelings of guilt during this period, although 13% said they were unconcerned. The study concluded that 91% of the women reported that "knowing the test results relieved their anxiety for the remainder of the pregnancy". Using a similar approach but with a larger sample (N=157), Finley, Varmer, Vinson, and Finley (1977) found that while the major concerns of the women prior to amniocentesis were: (a) whether the test would show an abnormality, (b) possible fetal injury, (c) possibility of having to make a decision about abortion, (d) pain, and (e) possible miscarriage. After the procedure and the completion or termination of their pregnancy these women projected that their major concerns with a subsequent pregnancy and test would be: (a) the results of the test, (b) having to decide to end the pregnancy, (c) possible injury to the fetus, (d) possible miscarriage, and (e) having to have fluid drawn more than once. When asked if they would have this test again, 94% of the women responded affirmatively. Unfortunately, the researchers did not ask the respondents about their major concerns after receiving the results or the concerns of their husbands during this time. All that was written about the husbands was that 70% were reported as being strongly in favor of having the test done, 11% were reported as having hesitations,

3% as having no opinion, and 1% as strongly disapproving. Comparable results have also been obtained by other researchers using similar questionnaires and data collection procedures (Duncan, Finley, & Finley, 1976; Godmilow, Milano, & Hirschhorn, 1978).

The other source of data about the psychological impact of amniocentesis has been largely anecdotal in form and comes from the reports of genetic counselors and social workers. They too described the anxiety, guilt and self-doubts that many of these couples experienced while waiting for the results of the test and discuss methods they used in counseling these people with the anger, depression, grief and mourning they experienced upon the return of a positive result, a result which indicated the presence of a defect (Griffin, Cavanagh, & Sorenson, 1976-1977; Murray, 1976; Robinson, Tennes, & Robinson, 1975; Weiss, 1976).

While this information illustrated the emotional components of amniocentesis, its utility for medical personnel, genetic counselors and pregnant couples was limited by the use of retrospective data, indirect reports of other's feelings and experiences, lack of instrumentation, and the lack of a control group. As the committee of the National Academy of Sciences on Genetic Screening stated in 1975, "There has been too little attention paid so far to detailed examination of the thoughts, feelings, and attitudes of women who have undergone amniocentesis, or of those of their husbands."

Theoretical Framework

New discoveries in human biology have already begun to affect the way parents, with their physicians and genetic counselors, make decisions about parenthood and childbearing. While current debate has been centering

on the morality of futuristic proposals for making "better babies"--cloning and in vitro fertilization of an ovum for eugenic purposes (Kass, 1971; Fletcher, 1971; Rahner, 1968; Ramsey, 1970), some parents have already crossed a borderline of decision-making and are venturing out to use the knowledge obtainable from prenatal diagnoses of genetic disease in their unborn children. With this decision to use the knowledge made available by amniocentesis, parents and their advisors are confronting very grave ethical questions for which the traditions of parenthood and the morality surrounding it have not prepared them. Subsequently, this first generation of parents who have had an informed choice about abortion for genetic reasons as indicated by amniocentesis show signs of "moral suffering" of the highest order as they struggle with their conflicts, duties and changing perceptions of parenthood (Fletcher, 1972).

The structure of the moral problems of these parents has been cogently outlined by Fletcher and appears in Figure 1. On the first line are listed the major events prior to, and after the genetic-counseling relationship. On the second line are listed the major moral problems experienced by parents and the genetic counselor within the time frame of the events on the first line.

These moral problems can be understood within the framework of two types of human conflict. The first type occurs when a person or a group is perceived by others to be in fundamental violation of responsibilities to the welfare of a significant human community (Parsons, 1951). The moral problem is defined in collective terms--"Are you with us or against us in this matter?" Thus a Catholic mother who decided on abortion of a

I. DECISION ABOUT AMNIOCENTESIS

Events	genetic problem arises ⟷	information from media, physician, friend, etc. ⟶	consultation with physician or spouse ⟶	genetic counselling amniocentesis
Moral Problems	unresolved guilt questions from previous births or abortions	how trustworthy?	abortion question; conflict with physician and/or family; autonomy; religious conflict	impact of counsellor's values; risks vs. benefits; informed consent; indications for amniocentesis

II. DECISION FOLLOWING AMNIOCENTESIS

Events	postamniocentesis	results reported ⟶	negative ⟶	birth
			positive ⟶	abortion/sterilization/birth
Moral Problems	fidelity to family and marriage; anxiety vastly heightened		decision on abortion and sterilization; re-evaluation of child-bearing, marriage; "rejection" of living child or sib with same genetic problem while making abortion decision	

III. POST ABORTION/STERILIZATION/BIRTH

Moral Problems	justification of decision; cosmic doubts; self-rejection; decision about future births; fidelity to marriage

Figure 1. Structure of Moral Problems of Parents in Genetic Counselling

Fletcher (1972)

genetically defective fetus would be judged by the norms of a significant segment of the Catholic community, whether she felt guilty or not. The second type of conflict finds a person confronting sharply conflicting responsibilities, being divided within him- or herself, and making a decision which expresses the conflict. An individual or couple faced with the possibility of positive results from an amniocentesis may find themselves caught between a loyalty to the life of their child and a loyalty to the norm of a "healthy life". This is a situation which Carney (1968) has described as a "conflict of rule" situation and it has been postulated by Lappe (1973) that when these two types of moral problems coalesce into one, the most intense moral suffering can be expected.

Fletcher (1972) has described this "moral suffering" which parents experience as they attempt to come to terms with the impact of amniocentesis on their roles and perceptions of morality. He believes that,

> (it) occurs when highly motivated parents who desire children intensely, even desperately, are caught between the rightness of protecting their families from the great strains which genetic disease may place upon them, and the rightness of unconditional caring for the life of their conceived child. In more formal terms, these parents find themselves suffering actively in the process of making society, even as that society and its products feedback upon them to introduce new choices into the parent-child relationship.

Summarizing, it would seem that moral suffering occurs when a person is caught in a dilemma of choosing between two goods. It also seems that amniocentesis and the possible abortion of an affected fetus represent the coalescence of moral problems which as Lappe (1973) stated can bring the most intense moral suffering.

Assuming the existence of this moral suffering, one would expect to find certain behavioral indices to be mentioned in the literature that focuses on amniocentesis and selective abortion. A review of the data contained in clinical and experimental studies pertinent to these topics found numerable references to feelings of anxiety, self-doubt, and guilt (Antley & Hartlage, 1976; Blumberg, Globus, & Hanson, 1975; Finley, et al., 1977; Globus, et al., 1974; Griffin, et al., 1976-77; Lappe, 1973; McCormick, 1974; Murray, 1976; Robinson, Tennes, & Robinson, 1975; Sammons, 1974, Weiss, 1976). It may be that these attitudes constitute the experience that has been described as one of "intense moral suffering" or are at least core components of it. The reported frequency of their occurrence as well as their seeming universality seemed to indicate that it was so. It also indicated an important avenue for investigation.

Purpose of the Study

The purpose of this study was to provide non-retrospective information about the psychological consequences of amniocentesis for both the husband and the wife. More precisely, this study attempted to measure the impact that amniocentesis had on a couple's level of anxiety and self concept. Data were gathered before and after the results of the amniocentesis were known for both husbands and wives and were compared with similar data collected on pregnant couples who did not have an amniocentesis performed.

Statement of the Problem

In gathering data on the psychological consequences of amniocentesis, this study attempted to answer the following questions:

1. Does an individual's level of anxiety or self concept change after receiving the results of an amniocentesis?

2. Are there differences in a woman's and man's level of anxiety and self concept before or after receiving the results of an amniocentesis?

3. Is the level of anxiety and the self concepts of couples who have had an amniocentesis different from the level of anxiety and self concepts of pregnant couples who do not have an amniocentesis performed?

It was hoped that in answering these questions, this study would contribute information needed by individuals who are attempting to evaluate the total impact of amniocentesis on a pregnant couple. It was also hoped that the results of this study would underscore the importance of assessing the psychological as well as the physiological impact of all medical diagnostic procedures used during pregnancy.

Definition of Terms

The major terms used in this study were defined and clarified as follows:

1. Amniocentesis - a procedure in which a sample of amniotic fluid is withdrawn through a needle during the second trimester of pregnancy. The fluid contains cells shed by the growing fetus that can be cultured and tested for biochemical and chromosomal defects (Sammons, 1978).

Operationally defined: A woman's report of having had the procedure performed in one of the Washington, D.C. or Baltimore, Md. metropolitan area hospitals.

2. Anxiety - is the experience of tension that results from real or imaginary threats to one's security (Nordley & Hall, 1974).

Operationally defined: An individual's scores on the IPAT Anxiety Scale Questionnaire.

3. Self Concept - an individual's appraisal or evaluation of himself (Dictionary of Behavioral Science, 1973).

Operationally defined: An individual's scores on the clinical and research form of the Tennessee Self Concept Scale (Fitts, 1965).

Chapter II

Review of Related Literature

In the first part of this chapter, an historical perspective of the study's two dependent variables, anxiety and self concept, will be presented. It will then be followed by a review of data pertinent to the three research questions presented in Chapter I. Those questions were:

1. Does an individual's level of anxiety and self concept change after receiving the results of an amniocentesis?

2. Are there differences in a woman's and man's level of anxiety and self concept before or after receiving the results of an amniocentesis?

3. Is the level of anxiety and the self concepts of couples who have had an amniocentesis different from the level of anxiety and self concepts of pregnant couples who do not have an amniocentesis performed?

The latter review of literature came from three informational sources that were most highly related to the focus of the study, amniocentesis. Those informational sources were the amniocentesis, eugenic abortion, and pregnancy literature. The format selected for the presentation and evaluation of the data from these three informational sources is as follows:

1. Introduction
2. Review of Empirical Research
3. Review of Clinical Research
4. Summary

The chapter is concluded with a summary of the gaps in our knowledge of the psychological consequences of amniocentesis and the development of a series of hypotheses that when tested would fill those gaps.

Anxiety

An Historical Perspective

Contemporary interest in anxiety has its historical roots in the philosophical writings of Pascal and Kierkegaard (May, 1950) but it is Freud who is essentially recognized as the explicator of modern anxiety theory. He regarded anxiety as an unpleasant affective state or condition. Specific symptoms of the anxiety phenomenon included heart palpitations, disturbances of respiration, sweating, tremor and shuddering, vertigo, and numerous other physiological and behavioral manifestations (Freud, 1924).

Freud (1936) believed that anxiety was distinguishable from other negative affective states such as anger, grief, or sorrow by the unique combination of phenomenological and physiological qualities. It was the phenomenological qualities of anxiety, the feelings of apprehension or dread, which Freud emphasized in his later writings. He focused in on identifying the sources which caused the anxiety rather than analyzing the properties of such states in hope of discovering the "historical element . . . which binds the afferent and the efferent elements of anxiety firmly together" (1936, p. 70). The physiological qualities, although an essential part of the anxiety state, were not of theoretical interest to him. Freud was mainly concerned with identifying the roots of anxiety.

In his later writings, Freud conceived of anxiety as a signal indicating the presence of a danger situation and differentiated between objective anxiety and neurotic anxiety. The distinguishing characteristic

seemed to be whether the source of danger was from the external world or from internal impulses. In other words, objective anxiety involved a complex internal reaction to anticipated injury or harm from some real external danger. Neurotic anxiety, on the other hand, differed from objective anxiety in that the source of danger that evoked the feelings of apprehension and arousal was internal to the individual. Although neurotic anxiety is experienced by everyone to a certain degree, it becomes a clinical syndrome when manifested in inordinate amounts. It is this form of anxiety which Freud considered to be the central core of neurosis (1936, p. 85).

Freud was not alone in this interest in and study of anxiety. Other personality theorists joined Freud in the study of anxiety. With each new theorist's interest, the lack of agreement regarding the nature of anxiety grew. Consider for example, the differences among the concepts of anxiety espoused by Mowrer (1950), Sullivan (1953), and May (1950). Mowrer proposed that neurotic anxiety resulted from the repudiation of the demands of the conscience, not the instincts, and from repression that had been turned toward the superego rather than the id. For Sullivan, anxiety was an intensely unpleasant state of tension arising from experiencing disapproval in interpersonal relations and that once aroused, distorted the individual's perception of reality and caused those aspects of the self that were unacceptable to be dissociated. May, on the other hand, perceived anxiety to be "apprehension cued off by a threat to some value which the individual holds essential to his existence as a personality" (1950, p. 191). He believed that while the capacity to experience anxiety was inborn, the stimuli which evoked it was largely the result of learning.

As can be seen from these three diverse definitions, anxiety is a most complex phenomenon. In fact, Spielberger (1966, p. 6) posited that it was this very complexity of phenomenon, coupled with the ethical problems associated with inducing anxiety in a laboratory setting and the lack of appropriate instrumentation, that contributed to the paucity of research one sees prior to 1950.

The factor analytic studies of Cattell and Scheier (1958, 1961) contributed to the resolution of the conceptual ambiguities as well as the semantic confusion that had surrounded the anxiety phenomenon. These researchers identified two distinct anxiety factors which they labeled trait and state anxiety. The trait anxiety factor was interpreted as measuring stable individual differences in a relatively permanent personality characteristic. The state anxiety factor was defined as measuring a transitory state or condition of the organism which fluctuated over time.

Since that time researchers have suggested that it may be more meaningful to conceive of anxiety not as either a state or train phenomenon but as a trait-state phenomenon (Hanfmann, 1950; Lazarus, Deese, & Ostler, 1952; Malmo, 1957; Krause, 1961). This conception has not been presented as a theory of anxiety but more as a conceptual framework for viewing the theory and research on anxiety.

In this trait-state conception of anxiety, two anxiety concepts, A-trait and A-state, are posited. The A-states are characterized by subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic

nervous system. The A-traits are seen as an acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively nondangerous circumstances as threatening, and to respond to these with A-state reactions disproportionate in intensity to the magnitude of the objective danger (Spielberger, 1966).

In essence, it was proposed that the arousal of A-states involved a process or sequence of temporally ordered events. This process could be initiated by an external stimulus or an internal cue. If the stimulus situation was cognitively appraised as dangerous or threatening, then an A-state reaction was evoked. The A-states could also activate cognitive or motoric defensive processes which would be effective in reducing the A-states by altering the cognitive appraisal of the danger situation. The A-trait, which is assumed to reflect the residues of past experience, and explains individual differences in anxiety proneness, was not expected to influence A-state responses to all stimuli but only to certain classes of stimuli. A diagram of this process was presented by Spielberger (1966, p. 17) and has been included in Figure 2.

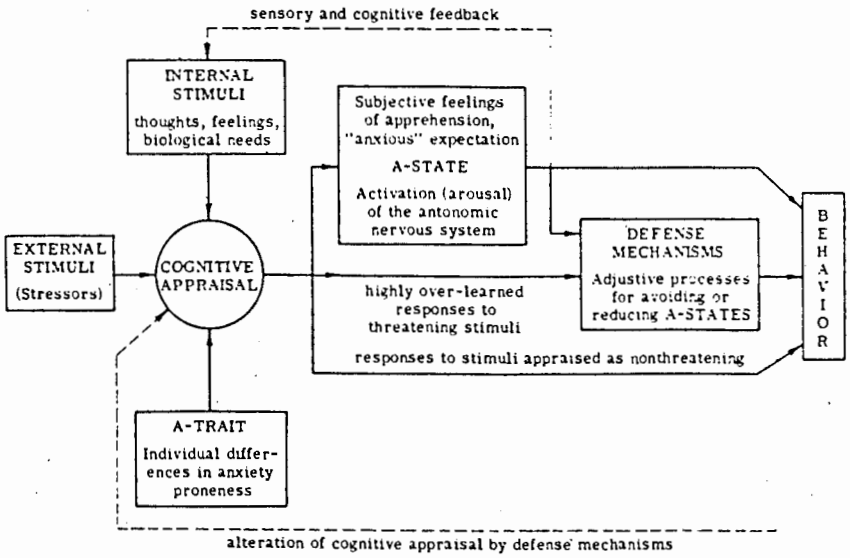

Figure 2: State-Trait Anxiety Process

The research activity of scientists, at this point in time, reflects an appreciation of the trait-state conception of anxiety. It can be seen in the current usage of anxiety instruments which include both trait and state anxiety measures.

Self Concept

An Historical Perspective

The study of the self has an ancient and venerable history among philosophers and psychologists alike and as a result of this long history the term, self, has taken on many different meanings. These meanings can be roughly placed into one of two categories, namely, "self as agent or process" and "self as object of the person's own knowledge and evaluation" (Symonds, 1951). Unfortunately, this simple dichotomy of "self as agent" and "self as object" began to prove inadequate in the early part of this century when it no longer met the needs of many personality theorists. For example, Horney (1950) suggested that there was a "real self" present in everyone, and Maslow (1954) postulated about an inborn motive toward self-actualization. Thus much of the writings in the first half of the century focused on defining and redefining the concept of self to fit various personality theories and in establishing the behavior-determining role of this construct.

This impetus to the study of the self has been attributed to a variety of factors. One factor often cited was the later writings of Freud which assigned a greater importance to ego development and functioning and to the Neo-Freudians who stressed the importance of the self-picture and the ego-ideal (Wylie, 1961). However, one can not disregard the fact that

during the same period of time, American psychologists were beginning to engage in clinical work and were finding the behaviorists' models lacking in their ability to explain phenomena they were observing. Thus a growing number of psychologists were ready to entertain any idea or conceptual schema that would allow them to account for their observations. In other words, the time was ripe for an operational behaviorism involving complex intervening variables to be explored within the domain of general psychology (Mischel, 1968).

It has been found that almost all of the theories of personality which were put forth within the last four decades have assigned importance to a phenomenal and/or nonphenomenal self concept with cognitive and motivational attributes. The phenomenal self refers to a conscious self concept, while the nonphenomenal self refers to an unconscious self concept. These terms seem the most appropriate to use since many of the post 1950 empirical studies of self concept do not address themselves to any one theoretical position. According to Wylie (1974) it is this vague and incomplete state of self-concept theories which accounts for the methodological problems and weaknesses found in the instruments that have been developed to measure self concept.

It has been found that most of the post 1950 empirical investigations have been carried out with instruments that were used once or a few times at best and which were completely unvalidated for their purpose. It has been suggested that as a result of this situation, no one can adequately assess the state of the knowledge about the self concept (Wylie, 1974). Wylie (1974) believes that some of the problems can be mitigated by

recognizing the need to use instruments with acceptable levels of reliability and validity and by justifying one's conclusions in light of the limitations of the instrument selected to measure the self concept.

Amniocentesis

Introduction

Intrauterine diagnosis during pregnancy was a matter of interest even to the ancients. Concerning themselves mostly with the determination of fetal sex, these early investigators looked for some window into the prenatal world. As early as 1350 B.C. the Berol papyrus detailed a test for fetal sex: barley and wheat in two separate bags are mixed with the mother's urine. If the barley germinates, a girl would be born; if the wheat germinates, the product of the pregnancy would be a male (Goodner, 1973).

It was not until the early twentieth century that investigators began to examine maternal body fluids with a more scientific approach to antenatal sex determination. In 1930, Menees and his associates published a preliminary report detailing the clinical use of amniocentesis and amniography. The use of transabdominal amniocentesis and the examination of amniotic fluid, however, did not gain acceptance until 1960 when Riis and Fuchs demonstrated that the cells within the amniotic fluid could be stained for sex chromatin bodies. Since this permitted the determination of fetal sex with a fair degree of accuracy, the way was opened toward detecting the sex of the fetus in pregnancies in which there was a significant risk for X-linked disorders, such as Duchennes muscular dystrophy and hemophilia. Thus, identifying a fetus in a woman at risk for these

conditions as male would give that fetus a 50% risk for having one of these problems, whereas a female fetus would be virtually at no risk.

Six years later, Steele and Breg (1966) launched the current science of prenatal detection by demonstrating clearly that the cells in the amniotic fluid were fetal in origin and could be grown in sufficient quantities for karyotypic analysis. Since these early observations, there has been a dramatic increase in the ability to cultivate amniotic cells in vitro. Nadler (1968) and Jacobson and Barter (1967) in particular have been extremely active in getting prenatal diagnosis established as a useful clinical tool. Presently, three general groups of diseases are detectable by the technique of amniocentesis. They are: chromosomal aberrations, sex-linked, and metabolic disorders. Other diseases will undoubtedly be added in time.

Review of Empirical Research

The majority of the studies that have been conducted by researchers in the area of amniocentesis have reported women's responses to questionnaires mailed or administered to them after the birth of the child or the performance of an abortion. Although the data were limited to frequency counts or percentages the information recorded does give some insight into the concerns and attitudes of women who have opted to have this procedure performed.

Golbus, Conte, Schneider, and Epstein (1974) were the first investigators to collect data on the reactions of women to the amniocentesis experience. Of the 76 questionnaires sent out after the patient received the results of the test 61 were returned. Of those women returning the

questionnaire, 62% reported being anxious and impatient during the 3-4 week waiting period, while 15% reported feeling guilty about the possibility of having an abnormal child, and 7% reported feeling depressed. The women also reported that their husbands were anxious during the waiting period. Ninety-one percent of the women reported that knowing the test results relieved their anxiety for the remainder of the pregnancy. No information was given as to why these women had decided to have an amniocentesis performed.

Duncan, Finley, and Finley (1976) improved upon the questionnaire developed by Golbus and associates by adding questions that would evaluate among other things the reason for referral, complications following the tap and the accuracy of the amniocentesis. They mailed the questionnaire to 82 women who had the tests performed an average of 10 months earlier. Sixty-eight percent of the women responded.

It was found that advanced maternal age was the major reason for having a prenatal diagnosis. Complications were at a minimum with only three reported spontaneous abortions occurring at 2, 6, and 8 weeks after the amniocentesis. The major concerns of the women in decreasing order were possible fetal injury, anxiety and tension during the waiting period, guilt, fear, and shame of possible abortion of defective fetus and fear of pain. Women without previous abnormal children stated that they would not want prenatal studies if therapeutic abortion of an abnormal fetus was not planned, while women with a previous Down's Syndrome child said that they would want the studies under any circumstances. It was also found that the vast majority of women found the test reassuring and would seek it again with a subsequent pregnancy.

An unfortunate aspect of this study was that the authors did not get any information from the husbands on their reactions and concerns, nor did they provide the reader with appropriate percentages or frequencies. Thus, one must guess as to how many constitute the "majority".

Finley and associates (1977) amended those problems mentioned for the questionnaire she co-authored with Duncan and mailed it to 196 women who had completed their pregnancies. A total of 157, or 80% of the 196 patients contacted responded. In addition 10 women who had received abnormal results from the amniocentesis were included in the group of 196 who received a questionnaire.

They found that 57% of the women had an amniocentesis performed for age reasons, while 20% had it as a result of a previous birth of a child with a neural tube defect and 18% because of the previous birth of a child with a chromosomal abnormality. Prior to the withdrawal of the amniotic fluid, women reported their greatest concerns to be: the test results (66%), possible fetal injury (60%), having to decide to end the pregnancy (49%), pain incurred during the test (36%), possible miscarriage (30%), and unknown aspects of the test (25%). When asked what their greatest concerns would be if they had the test again, the women responded in a similar manner. The only exception was that they were no longer concerned about the unknown aspects of the procedure but were concerned that someone other than their own personal physician performed the test. While these lists of concerns were most revealing, they did not give any indication as to how these concerns were experienced or expressed. In other words, there was no information on how these concerns were manifested.

The addition of two questions not previously asked this population greatly increased the knowledge of the total experience of amniocentesis. Those questions focused on the spouses' support or approval of the test and the woman's willingness to abort an affected fetus prior to receiving the results of the test. Seventy percent of the women reported their husbands as being strongly in favor of the test, while 12% reported that their husbands were strongly disapproving or at least hesitant in their approval and 30% reported that their husbands had either no opinion or deferred the decision to the woman or the doctor. Similar percentages were found in the women's response to the question concerning their willingness to terminate an affected pregnancy. Seventy percent of the woman said that they had planned to end their pregnancy if the child was found to be defective, while 29% were undecided or replied in the negative. One wonders about the interrelationship between a woman's decision to terminate an affected pregnancy and the expressed or perceived approval of the spouse for amniocentesis. One also wonders about the direct or indirect effect of these two variables upon the concerns women expressed about the procedure itself. Unfortunately the next and most recent retrospective questionnaire did not address these queries.

Godmilow and her associates (1978) evaluated patient response to the entire prenatal diagnosis process. Their results indicate that the majority of patients had a very positive response to the way in which the process was handled by the professionals and it was concluded that most patients would participate in prenatal studies in any subsequent pregnancy.

Although these researchers did not follow the example of the others cited within this section and expand upon the pre-existing data base,

particularly in the area of psychological reactions to the waiting period and the results, other researchers did.

In a one year follow-up study, Robinson, Tennes, and Robinson (1975) assessed the effects of amniocentesis upon 22 infants and their mothers. The infants were tested to determine if there were any mental or motor development deviations. There were none. The mothers were interviewed during the same time in order to understand the emotional aspects of the experience.

The women's responses to the clinical handling of the amniocentesis experience reflected the same overall positive reaction that has been reported in the various questionnaire surveys that have been cited. Nineteen women rated their reaction to genetic counseling as being positive, while 2 women described themselves as neutral and 1 negative in their reactions. The researchers used these general expressions of satisfaction as a baseline against which to measure the subjective anxieties of the patients. They took the women's reports of their experiences with five components of the amniocentesis process at face value and did not attempt to interpret any possible defenses. Women were judged as having no anxiety if they reported little or no worry about the amniocentesis experience. Their anxiety was judged moderate if it was confined to the immediate events of the test, that is, involving anticipation, tap, and/or waiting for results. Those with high anxiety continued to worry throughout the remainder of their pregnancies and, in some cases, after the birth of the child. Using these categories, three women were judged to have high anxiety, seven to have moderate and 12 to have no anxiety about the amniocentesis.

Of the five component parts of the amniocentesis process, the waiting period between amniocentesis and final diagnosis was reported as being the most distressing period, a time of great anxiety. Although 20 of the 22 women reported being extremely preoccupied with the test results during this time, after receiving the test results, 17 of these women experienced positive relief and enjoyed happy and healthy pregnancies. The other three women had to wait for the birth of their child before believing the child was normal since the fetal cells did not grow and diagnosis could not be made.

Anxiety over the test was positively related to concern over bearing a defective child which was in turn influenced by previous experience with such a child. Seven of the 8 women who were highly worried about bearing a defective child, had previously had a defective child. The eighth woman was pregnant for the first time at age 42.

The women in the 35-39 age group had the lowest anxiety about the amniocentesis, the results, and its aftereffects. These women saw the test as part of good prenatal care, and were usually following doctor's orders with an inner certainty that their babies would be fine.

The researchers questioned whether the consideration of abortion in the event of a diagnosis of genetic disease was a component of the stress and anxiety reported by these women, since intrauterine diagnosis raised the possibility of aborting what is usually a highly desirable pregnancy. They found that for 13 women, it was an uppermost concern. Three more women felt it to be the most difficult part of the amniocentesis experience. Nevertheless, 17 women had no doubt that they would abort an affected

child, although some of them imagined that it would be difficult or that they would feel remorse. Mothers with a previous defective child tended to have the most conflict about a possible abortion.

After summarizing the results of their study, Robinson and colleagues concluded that a prospective rather than retrospective study would be more valuable in obtaining significant data on the impact of amniocentesis.

While a prospective study was not forthcoming, Blumberg, Golbus, and Hanson's (1975) study of the psychological consequences of abortion performed for genetic reasons did address the issue of a possible correlation between anxiety and stress during the waiting period and the possibility of pregnancy termination. They conducted psychiatric interviews and psychometric testing on 13 families in which the women had undergone amniocentesis for the detection of a genetic defect and who upon receiving positive results, elected to have a therapeutic abortion.

They found that the results for the women on the Minnesota Multiphasic Personality Inventory (MMPI) were very close to the population mean profile, whereas the group profile exhibited by the men showed elevations in the scales of depression, hysteria, sociopathy and hypomania. The elevation of the hysteria and depression scales is commonly seen in individuals experiencing somatic symptoms such as an expression of underlying tension, anxiety, and worry. The MMPI's were administered an average of 21 months after the abortion.

Data from the home interviews indicated that depression was an immediate response to selective abortion. Only two of the 13 women and four of the 11 men failed to mention depression in describing their emotional reaction

to abortion. Of the six nondepressed individuals, one woman and two men exhibited MMPI profiles which reflected a tendency to deny emotional problems. The intensity and duration of depression experienced showed wide differences. The researchers concluded that the role of decision maker in opting for a selective abortion significantly contributed to the depression following the abortion and also affected the individual's foundations of self-worth, especially to the extent that self-esteem was predicated upon the ability to create a normal, healthy family. Memories of previous misfortunes, realizations of present failures, and anticipation of future difficulties combined to produce a significant emotional impact for these families.

The data also indicated that a family's experiences subsequent to selective abortion were important in shaping or modifying the emotional aftermath of the procedure. The birth of a normal child seemed to reaffirm the personal sense of worth of the parents and helped alleviate much of the guilt engendered by the previous confrontation with genetic disease.

Other indices of the emotional impact of selective abortion were that in four of the 13 families the stresses attendant to the procedure produced undesirable marital consequences. Two of the families separated prior to the performance of amniocentesis and two following the abortion. In each case the separation was instigated by the husband. Another observed phenomenon following selective abortion was described as a "flash-back" effect which persisted for many months or even years after the procedure. Many women reported discomfort when reminded of their abortion. Recollections could be triggered by objects or events related to childbearing or babies.

In this study, only 77% of the families reported that they would opt for amniocentesis and, if indicated, selection abortion in any future pregnancy. This is in sharp contrast to the 90-95% reported by other researchers whose patients had received a negative result for the amniocentesis. It would seem that the actual experience of a positive amniocentesis and a selective abortion tempers somewhat the enthusiasm felt for these two procedures. Although there was evidence to suggest that a family's ability to accept amniocentesis and selective abortion without self-reproach was influenced by their previous experience with the disease for which the were at risk.

Antley and Hartlage's (1976) study of the psychological responses of families of Down Syndrome children underscored this last finding. They found that following genetic counseling in which parents were told about the availability of amniocentesis for subsequent pregnancies as well as of special education programs, there was a significant lowering of anxiety and depression along with a significant increase in overall self concept.

The few studies that have ventured beyond retrospective report and have recorded the ongoing emotional reactions of individuals having an amniocentesis have been conducted in only the most recent years.

Ashery (1975) sparked interest in the use of a prospective study when she investigated the impact of social work intervention on the manifest anxiety of couples having an amniocentesis. She interviewed 85 couples and administered a state-trait anxiety instrument to them at 6 points in time. She found that her social work intervention was not effective in reducing the couples' anxiety level. Based on the mean anxiety scores,

her interviews with the couples and her subjective observations, she posited that the reason why the social work intervention was not effective was because the amniocentesis experience was not perceived as a crisis situation by the couples involved. It must be noted, however, that there were methodological flaws which could have affected the results of the study, namely, the researcher and social worker were one and the same, incomplete data sets, and lack of aggressive casework.

Astbury and Walters (1979) tested 28 women who were at risk for having an abnormal fetus with the same instruments used by Ashery (1975) but only at two points in time--before the amniocentesis was performed and after the results were received. Twenty-seven of the women received negative amniocentesis results which indicated that the fetuses were free of the handicaps tested for. The one woman who received a positive diagnosis of Down's Syndrome elected to terminate the pregnancy. When they analyzed the data, Astbury and Walters found that there were significant decreases in both state ($p = .01$) and trait ($p = .05$) anxiety level after the women received their amniocentesis results. They interpreted these findings as indicating that the results of the amniocentesis so reduced patients' feelings of anxiety, that the women felt less anxious after receiving the results than they were generally accustomed to feeling. These results contrasted with those just previously cited in the Ashery study.

Beeson and Golbus (1979) continued the work begun by Ashery by investigating the influence of the counselor during the waiting period stage of the amniocentesis process. They selected women and their spouses differing in their risk rates for bearing a handicapped child and randomly assigned

them to one of two groups. The experimental group received weekly telephone calls from the counselor informing them at what stage in the process of analysis their cultures were, and assuring them that while there was no indication of results yet, everything was going as expected. The control group received no such calls during the waiting period. Using the same state-trait anxiety instrument used in the previous two studies, these researchers measured state anxiety at four points in time--before the amniocentesis, 9-12 and 23-26 days after the tap, and finally, one week after favorable results were received. Trait anxiety was measured prior to the amniocentesis and then one week after the results were received. They found that for those couples who had an amniocentesis performed for the indication of advanced maternal age, there were two anxiety peaks. The first occurred in the clinic prior to the amniocentesis and the second was approximately 3½ weeks after the test but immediately prior to receiving the results. They also found differences in the level of anxiety for these women and their husbands, with the men reporting lower levels of anxiety at all points and significantly so just prior to the tap.

When they analyzed the anxiety data for the couples who were having an amniocentesis because of a previous birth of a handicapped child, they found similar anxiety trajectories. The levels measured before the tap and before receiving the results were however more elevated in this group than in the advanced maternal age group. It was also found that these women were more anxious prior to the tap then were their husbands. These men were however more anxious than the advanced maternal age men.

Like Ashery (1975), they found that the counseling provided during the waiting period did not produce any significant reduction in anxiety

level for the experimental group.

Each of these prospective studies significantly increased our knowledge of the psychological impact amniocentesis has on the individuals directly involved in it. Evidence was presented which indicated that the waiting period, the time after the tap but before the results, was a time of high anxiety; that the husbands although anxious were less so than their wives; and, that the previous birth of a handicapped child magnified the degree of anxiety experienced. What remained to be done was to determine if the degree of anxiety experienced during the amniocentesis process differed from the degree of anxiety which is normally experienced during pregnancy. In other words, a prospective study needed to be designed which would compare the anxiety levels of couples who were having an amniocentesis to those of couples who were pregnant but not having an amniocentesis performed.

Review of Clinical Research

In 1972, John Fletcher published the first report of the moral problems experienced by parents involved in prenatal diagnosis and genetic counseling. It became a hallmark study which revolutionized the field of human genetic counseling and sparked interest in the psychological aspects of amniocentesis. His interviews with 25 couples before, during and after genetic counseling sessions and amniocentesis produced an abundance of information about these people's experiences which has not been duplicated by any study to date.

From the interviews, the ambivalence and loss of self-esteem parents experienced as a result of contemplating a selective abortion is clearly seen. "When you feel movement, you feel ashamed about contemplating abortion." With this quote and others like it, Fletcher captured the moral

dilemma these parents were in as they grappled with their parental responsibility to provide for the health of their children and the security of their families, their societal responsibility of not contributing further problems or burdens, and their personal responsibility to protect and nurture this developing person.

His interview data were the first source to indicate the period following amniocentesis to be a time of considerable personal anxiety and marital stress. It also described the acute personal suffering, guilt, self-condemnation, sense of failure, that couples experienced following a positive diagnosis and the concern negative results brought parents to find ways to explain to their existing affected child or their new healthier child how it could happen that they once contemplated an abortion because of a diagnosis. Fletcher was also the first researcher to note that it was the women who tended to take on the onus of genetic defect--"It is my fault, why should he have to pay for it?" This study also underscored the relief and joy these couples experienced throughout the remainder of the pregnancy as a result of the negative results, and hinted at the development of stronger attachment relationship between parent and child as a result of "knowing" the child before it was born.

McCormick (1974) was one of the first to address the ethical questions raised by Fletcher within a genetic counseling perspective. Using a case study from his own practice, McCormick outlined ways in which counselors could help couples seeking assistance to come to an informed decision about the use of amniocentesis and selective abortion. He also described various institutional practices which unfairly influenced a couple's

decision and urged genetic counseling institutions to revise their policies so couples can reach decisions representative of their moral positions rather than in acquiescence to the institution's policy in order to obtain a desired procedure.

An article by Weiss (1976) described the roles and responsibilities of various personnel working in a genetic setting. In it, she outlined the emotional impact that genetic facts have on individuals and explained ways in which individuals who discover that they possess or transmit a defective gene may be helped in improving their self-image and in relieving their guilt.

Through the use of case study material, Murray (1976) expanded upon the emotional impact of a genetic report outlined by Weiss by describing the psychology of defectiveness--denial, guilt, hostility, grief, mourning--which must be worked through before parents can make good reproductive decisions. He also explained the psychological defense mechanisms which affected people used to cope with the strain of genetic disease.

Griffin, Kavanagh, and Sorenson (1976-77) reviewed the clinical research of more than 30 studies and provided more information about ways in which genetic counseling could be improved. Their last recommendation was that the genetic counseling process would benefit greatly from more information on the natural history of psychosocial processes that operate when people are confronted with genetic-related problems.

Silvestre and Fresco (1980) were the second and most recent researchers to conduct prospective, open-ended interviews about the psychological responses of women and men to the amniocentesis experience. They interviewed

62 women and 25 of their partners about their attitudes toward the medicalization of their pregnancy at three points in time: after receiving the results of the amniocentesis, toward the end of the pregnancy or a few months after an abortion of an affected pregnancy, and shortly after the birth of the child.

These researchers found that the one factor which seemed most influential in affecting an individual's reaction to the amniocentesis experience was their personal history, particularly, whether the pregnancy was planned and desired, whether there were problems conceiving and carrying a pregnancy to term, or whether there had been a previous birth of a handicapped child. If the individuals' had had a history of problems, they were more accepting of the medicalization of their pregnancy. It was viewed as the price that they had to pay in order to have a healthy child. Yet, there seemed to be a need on the part of these couples to reduce the upset of this medicalization or to protect themselves against the complete medicalization of the pregnancy. Some of the methods employed by the couples were to reduce the amniocentesis events into the realm of the ordinary, and to joke about the possible mislabeling of their child's sex. For example, the tap was seen as no different from a routine vaccination, and the test was done not because of possible handicap in the child but because of the age of the mother. Further, even though these couples knew that the diagnosis of the child's sex was as accurate as the diagnosis of an anomaly, they repeatedly joked that if the secretary or lab technician hadn't made a mistake it would be a boy or girl. This reduction to the ordinary was especially pronounced in the men who were interviewed.

It was also found that until the women received the results of the pregnancy, they did not allow themselves to experience the pregnancy as real. Some women mentioned that it was only after receiving the negative results that they felt the baby move for the first time.

This study once again underscored the emotional import that the amniocentesis procedure has on the lives of the people who experience it.

Summary

After reviewing the empirical and clinical data pertinent to the topic of amniocentesis, a number of informational points and gaps in our understanding of the process were seen. They were as follows:

Point 1: There was evidence which suggested that the waiting period for the test results was a time of great anxiety for the people involved.

Point 2: There was evidence which suggested that upon receiving negative test results, the anxiety decreased, perhaps ceased, for the remainder of the pregnancy.

Point 3: There was evidence which suggested that upon receiving positive test results, the anxiety increased until a decision was made about the pregnancy. Once made, the anxiety seemed to be replaced by feelings of guilt, grief, self-doubt, and mourning.

Point 4: There was evidence which suggested that the contemplation of or a necessity for a selective abortion affected parents' self concepts.

Gap 1: The majority of the information came from retrospective personal reports or mailed questionnaires.

Gap 2: There were few direct reports of the husband's anxiety level during this time period.

Gap 3: There have been few attempts to quantify the amount, intensity, or duration of this anxiety.

Gap 4: The majority of information came from the interpretation of verbal statements made by individuals involved in an amniocentesis/ selective abortion situation not by direct measurement.

It became clear that a series of hypotheses needed to be written in order to fill these gaps in our knowledge of the psychological consequences of amniocentesis and to test those few points which were known about the amniocentesis experience.

Eugenic Abortion

Introduction

The abortion literature, on the whole, was quite contradictory in its statements of the psychological effects of the procedure. Equal numbers of studies could be cited which conclude that the psychological impact of induced abortion range along a continuum from severe to no consequences. In fact, there were some individuals who took the stand that because there were so many divergent results, the aftereffects of abortion remain unknown (Population Study Commission, 1966; Newman, Beck, & Lewis, 1971). These contradictory results have been attributed to differences in methodology, samples, variables investigated and theoretical orientations. Researchers' anecdotes and biased interpretations of poorly designed studies have also contributed to this confused data base.

In an attempt to alleviate some of the confusion, recent reviews of the abortion literature categorized the data according to populations--

therapeutic, illegal, abortion on request, and reexamined the findings of psychological sequelae. The general consensus was that the effects of abortion were best apprised by the abortion on request data and that this data indicated that the psychological consequences were negligible if the woman did not feel "forced" into getting an abortion. The circumstances which women perceived as forcing them into opting for an abortion were direct or indirect pressure from the father of the child and/or the woman's parents, the jeopardized physical health of the woman and eugenic reasons. Those studies that focused on the latter circumstance were reviewed.

Review of Empirical Research

The first studies to be conducted on abortion for eugenic reasons occurred during the 1960's when women exposed to rubella infection petitioned hospitals for abortions because of the high risk of fetal deformity. Although they were not the primary focus of a series of studies of legal abortion applicants, their inclusion as a comparison group (non-psychiatric reasons for abortion) provided valuable information about the psychological sequelae of abortion for eugenic reasons.

Peck and Marcus (1966) interviewed 50 women when they applied for legal abortions, and 3 to 6 months following the procedure. Demographic, personal history, obstetric and gynecological, and psychiatric data were collected in the pre-abortion interview. In the follow-up, an examination reportedly was made of the woman's psychological condition, her relationships with others, and her attitudes toward future pregnancies. Most of the women were between the ages of 20 and 40, married, Jewish, well-educated, and private patients. Half of the sample received abortions for psychiatric indications and half for non-psychiatric (rubella) indications.

The researchers reported no significant demographic differences between the two groups. Only one woman in the psychiatric group had a negative reaction to the abortion, a short-lived depression. In the non-psychiatric group, however, 36% experienced a mild to severe depression and regretted that the abortion had been necessary.

Niswander and Patterson (1967) obtained results similar to Peck and Marcus (1966) although they used a questionnaire rather than an interview. In their sample of 116 women, 17 had obtained abortions because of rubella infection. Of these women, 65% reported immediate negative effects to the procedure and 47% reported long-term negative effects. This was in stark contrast to the effects reported by the women who received abortions on psychiatric grounds. In this group, 72.4% reported no or favorable immediate effects and 95.7% reported no or favorable long-term effects to the procedure.

Simon, Senturia, and Rothman (1967) also provided data on the effects of abortion for eugenic reasons. In their study of 46 women who had applied for and received therapeutic abortions, 39% did so for eugenic reasons (rubella), 26% for medical reasons, and 35% for psychiatric reasons. After analyzing information obtained from interviews, MMPI's, and Loevinger Family Problem Scale data, they reported that the eugenic group were more likely to become depressed, the medical group to feel guilty, and the psychiatric group to have positive responses after the abortion. Unfortunately, no statistical analyses were presented.

In the same year, an investigation by Kretzchmer and Norris (1967) of a sample consisting mostly of non-Catholic, married women who aborted for

medical or eugenic reasons reported that almost all of the patients felt anxious and depressed before the abortion and experienced a short period of depression after the abortion. A serious flaw with this study was that a large proportion of the women were sterilized in addition to having had an abortion. Therefore the outcome of abortion can not be studied as an independent factor.

Review of Clinical Research

The literature on abortion was replete with clinical studies whose principle emphases have been anxiety, depression, guilt and self-reproach. Unfortunately, no clinical investigations have been conducted with women aborting for eugenic reasons. The data that comes closest to a clinical study has been cited in the previous section. Fletcher (1972) interviewed three couples who received a positive diagnosis on the amniocentesis and opted for a therapeutic abortion and sterilization. Using their own words to describe their feelings and reactions to both the diagnosis and abortion, a picture of acute personal suffering was depicted.

Summary

During the 1960's, 50% of the women who had abortions because of rubella exposure and the risk of fetal abnormalities reacted to the procedure with depression, guilt, and self-reproach and exhibited a higher incidence of emotional side-effects following the procedure than women who had abortions for psychosocial indications. It might be expected then, that the anticipated or actual termination of a pregnancy established to be at high risk for fetal anomalies by amniocentesis would have emotional consequences similar to those observed for the rubella abortion.

Pregnancy

Introduction

Adjustment during pregnancy and postpartum has been studied from numerous perspectives. Many of the studies have focused on physical symptomatology, although a good number of them have focused on "the psychology of the experience" (Grimm, 1967). Interestingly, for many researchers the psychology of the experience has been interpreted from the viewpoint of women only and on the occasion of extreme forms of difficulties such as postpartum psychoses. In fact, the notion that pregnancy might have a normal and expectable psychological course is a relatively recent observation.

Regardless of their theoretical orientation, virtually all of those who have studied emotional reactions in pregnancy agreed on three issues. The first was that all women have both positive and negative attitudes toward their pregnancy; the second issue was that all women experience an increase in anxiety and tension during this time; and the third was that all women go through a process of distinguishing self, from fetus, from mother (Benedek, 1956; Bibring, 1959; Cohen, 1966; Colman & Colman, 1973; Deutsch, 1945; Goodrich, 1961; Hurst & Strousse, 1938; Liefer, 1971; Lienberg, 1967; Thompson, 1942, 1950).

In the following sections, studies that were chiefly concerned with pregnancy rather than postpartum adjustment were reviewed. The reasons for choosing this literature were that the pregnancy studies often concerned themselves with normal and usual patterns of change rather than with extremes of pathology; were more often longitudinal or prospective; and, the women were studied more intensively over a period of time.

Review of Empirical Research

One of the more interesting and systematic of the pregnancy studies was one conducted by Liefer (1971) in which 19 women were followed from early pregnancy to seven months postpartum. In this study, she examined the women's attitudes, emotional changes during pregnancy and after, and the development of maternal feelings. She was interested in how early adjustment to pregnancy was related to postpartum adaptation. She found that some of what was experienced during pregnancy was predictive of a successful adjustment postpartum and in particular that early acceptance of the pregnancy was such an indicator.

Liefer's research also contributed to further understanding of anxiety during pregnancy--a factor that has been of central concern in many earlier studies of pregnancy and postpartum adjustment. She noted that in her sample, anxiety was universal but not homogenous. She differentiated women who were anxious about themselves from women who were anxious about the fetus, and called the former sort of anxiety "regressive". The latter was seen as constructive since anxiety about the fetus seemed to facilitate a sense of attachment to it.

An earlier study by Cohen (1966) also found that women who started the pregnancy with few problems tended to do well during pregnancy and after. She found that the type of relationship a woman had with her mother and husband played an active role in the woman's adjustment to her pregnancy. Cohen was one of the first researchers to note that the husbands experienced stress during the pregnancy and that the stress was highly similar to their wives', that is, revolving around dependency, adequacy, and sexual identity.

Since the publication of this study the stresses and problems of the husband during pregnancy and postpartum have been discussed by a number of writers.

In a study of 60 primiparous women and their husbands, Lienberg (1967) noted that the sorts of behavior found in severe form in husbands who respond to their wives' pregnancies with mental illness were found in varying degrees in his unselected sample. Colman and Colman (1973) also emphasized the sense of stress felt by the husband because of his identification with his wife during pregnancy and cited a higher incidence of physical symptoms such as weight gain, nausea, stomach distress, and even abdominal bloating among the men whose wives were pregnant.

Review of Clinical Research

The psychoanalytic literature, particularly the writings of Bibring, Deutsch, and Benedek, had more to say about the psychological experience of pregnancy than the empirical literature.

Bibring (1959) regarded pregnancy, particularly the second half of pregnancy, as a period of crisis and as a time at which there is a temporary personality disturbance peculiar to pregnancy. In addition to noting the increase in anxiety frequently mentioned in the literature, she commented on the availability of primitive thoughts and feelings, particularly those pertaining to the mother. She spoke of the pregnant woman's being under stress in much the way that an adolescent is, in coping with a developmental task in which earlier conflicts are rekindled and old resolutions must be reworked. Bibring (1968) studied these regressive shifts in a longitudinal study of 15 primiparous women. She observed a definite

loosening of defenses, the appearance of primitive material especially about the mother, and major shifts in the pregnant woman's sense of people. The changes were clearly evident after quickening. Bibring felt that the increased salience of the mother and the general regressive loosening of defenses occurred because pregnancy was a developmental period in which the woman must further resolve her relationship to her mother. The regressive shifts reopened old conflicts, such as conflicts with the mother around dependency, autonomy, and Oedipal issues, but also facilitated further resolution. Bibring also stressed that guilt feelings over sexuality and over taking the mother's place were stirred up and further resolved.

Deutsch (1945) maintained that childbirth, like puberty and menopause, was a major landmark in a woman's sexual development, and like much else that has to do with sexuality and the acquisition of adult powers and prerogative may involve guilt or defenses against it. Although her observations were made on severely disturbed women, Deutsch believed that in the process of childbearing all women must face, in a much less primitive and intense way, these sorts of issues. She stressed the need of the woman to come to terms with her sense of her mother, to reconcile with her, so that she can become a mother herself.

Benedek (1956) also emphasized the importance of the woman's sense of her mother, and how it clearly related to her sense of her child. She also alluded to the hormonal basis of pregnancy and considered the psychology of pregnancy to be an expression, in an extreme form of the lutein phase of the menstrual cycle, in which the woman's passive-receptive attitudes

and behaviors become more prominent. She thought of this hormonal underlay as facilitating not only the biological task of pregnancy, but also the psychological task, Benedek viewed the psychological task as an intrapsychic reconciliation with mother that culminated in an integrated sense of self and a gratifying mother-child relationship for the woman.

Summary

Psychoanalytic writings about pregnancy dovetail with the empirical studies of it in stressing the existence of both anxiety and self-crises during pregnancy.

These findings brought up the question of whether the anxiety and self conflict that men and woman reportedly experienced as a result of having an amniocentesis performed differed in type or degree from that normally experienced as a result of pregnancy. To answer this question a series of hypotheses must be written and tested.

Derived Hypotheses

A number of informational points and gaps in our understanding of the entire amniocentesis process were uncovered in the review of literature most directly related to the amniocentesis experience. In order to test those few known points about the amniocentesis experience and to fill in the gaps in our knowledge of the psychological consequences of amniocentesis, a series of hypotheses were written. Those hypotheses, stated in a null form, were as follows:

1. There will be no change in a woman's anxiety level after receiving the results of the amniocentesis.

2. There will be no change in a man's anxiety level after receiving the results of the amniocentesis.

3. There will be no differences in a man's and woman's anxiety level before and after receiving the results of the amniocentesis.

4. There will be no difference in anxiety level for women who have amniocentesis and pregnant women who do not have an amniocentesis performed.

5. There will be no difference in anxiety level for men whose wives have amniocentesis and men whose wives are pregnant but do not have an amniocentesis performed.

6. There will be no changes in a woman's self concept after receiving the results of the amniocentesis.

7. There will be no differences in a man's self concept after receiving the results of the amniocentesis.

8. There will be no differences in a man's and woman's self concept before and after receiving the results of the amniocentesis.

9. There is no difference in self concept for women who have amniocentesis and pregnant women who do not have an amniocentesis performed.

10. There is no difference in self concept for men whose wives have an amniocentesis and men whose pregnant wives do not have an amniocentesis performed.

Chapter III

Methodology

After reviewing the literature relating to the three research questions presented in Chapter I, the following hypotheses were derived. To assist in the understanding of the hypotheses the following definitions are presented:

Treatment - knowledge of the results of an amniocentesis performed in the fifth month of pregnancy.

Treatment Group - was comprised of all women who had an amniocentesis performed during the fifth month of pregnancy and their husbands.

Comparison Group - was comprised of all pregnant women who did not have amniocentesis performed during the fifth month of pregnancy and their husbands.

Hypothesis 1: There are no significant changes in women's anxiety levels pre and post treatment.

Hypothesis 2: There are no significant changes in men's anxiety levels pre and post treatment.

Hypothesis 3: There are no significant differences in level of anxiety for women and men before the treatment.

Hypothesis 4: There are no significant differences in level of anxiety for women and men after the treatment.

Hypothesis 5: There are no significant differences in anxiety levels for the treatment group women and the comparison group women.

Hypothesis 6: There are no significant differences in anxiety levels for the treatment group men and the comparison group men.

Hypothesis 7: There are no significant changes in women's self concept pre and post treatment.

Hypothesis 8: There are no significant changes in men's self concept pre and post treatment.

Hypothesis 9: There are no significant differences in self concept for women and men before the treatment.

Hypothesis 10: There are no significant differences in self concept for women and men after the treatment.

Hypothesis 11: There are no significant differences in self concept for treatment group women and comparison group women.

Hypothesis 12: There are no significant differences in self concept for treatment group men and comparison group men.

In order to gather data pertinent to the testing of these hypotheses, the following stages of implementation were involved: (a) request for permission to use the IPAT Anxiety Scale (Krug, Scheier, & Cattell, 1957) and the Tennessee Self Concept Scale (Fitts, 1965) and the purchase of both tests; (b) request for the permission and cooperation of area genetic counselors and childbirth instructors in handing out study-participation pamphlets; (c) informing interested couples by phone about the nature of the study, manner of collecting data, the time commitments involved, the confidentiality of the data and the voluntary component of participation; (d) arrangement of appointments for home interview during the fifth month of pregnancy or after the completion of the amniocentesis, (e) filing of an informed consent form and the administration of the pertinent instruments and the collection of relevant demographic data in the couples' home;

(f) arrangement for a sixth month follow-up visit; (g) administration of the sixth month interview schedule; (h) analysis and interpretation of data collected; (i) mail out of study's findings to all interested participants. A detailed account of each procedural step is presented in the following sections of this chapter.

Instruments

The two instruments that were used to gather data pertinent to the research questions were the Institute of Personality and Ability Testing (IPAT) Anxiety Scale Questionaire (1957) and the Tennessee Self Concept Scale (1965). Information pertaining to these instruments was as follows:

IPAT Anxiety Scale Questionnaire (ASQ)

This questionnaire is a brief, non-stressful assessment of anxiety. It is a paper and pencil inventory, suitable for administration to either individuals or groups. It is untimed and typically takes five to ten minutes to complete. This scale was designed to yield, in a brief and objective manner, data regarding an individual's anxiety level. It is appropriate for subjects age 14 through the adult range. The IPAT consists of 40 multiple choice items to which the subject responds by indicating one of three alternative answers which is most descriptive of him or her. The scale assesses seven anxiety domains: defective integration, lack of self-sentiment, ego weakness, lack of ego strength, suspiciousness or paranoid insecurity, guilt proneness and frustrative tension of Id pressure. The scales provide both a trait and state anxiety score as well as a combined total score and six experimental scales. The authors recommend that the combined total score be used in empirical investigations of anxiety. This recommendation was heeded.

Normative data were provided for 23 groups, including a variety of neurotics, psychotics, character disorders and physically disabled subjects. Also, there are almost 3,000 normative cases available, classified under three main headings: general adult population, college students and teenage high school students. Each of these is presented separately by sex and with both sexes combined. This instrument also had the distinct advantage of having been successfully administered to pregnant populations and was shown to be sensitive to the subtle changes that occur during this time period.

Construct validity was estimated at .85 and .90 for the total scale. These values were obtained by correlating the items with the total scores of the five domains assessing anxiety. Also reported were values ranging from .30 to .40, correlating clinical judgment of anxiety level with ASQ scores. Test-retest, over a two year interval on 170 medical students yielded reliability coefficients ranging from .47 to .71, with a mean reliability of .60. The actual dependability (immediate retest) reliability figures, over a one week time interval, based on 70 files, were .89 and .82 for the covert and overt subscales, respectively.

Tennessee Self Concept Scale (TSCS)

This scale purports to assess an individual's self-perception and concept. It is a paper and pencil inventory suitable for administration to either individuals or groups. It is untimed and typically takes 10 to 20 minutes to complete. The Tennessee Self Concept Scale (TSCS) consists of 100 items that are self-descriptive statements. The subject employs these statements in order to construct a picture of him- or herself by

responding to them on a five point scale from "completely true" to "completely false". The TSCS is available in a counseling form and a clinical and research (C and R) form. The clinical and research form was determined to be the form most appropriate for this type of study. The C and R form yields the following scores: self-criticism, positive, variability, distribution, and, time. It also yields true-false ratio, net conflict scores and empirical scales, as well as the number of deviant signs score. For this particular investigation, the total positive score which reflects the overall level of self esteem was used as the measure of self concept. It should be noted, however, that the total positive score was comprised of seven parts. Those parts were an identity score, self-satisfaction score, behavior score, physical self score, moral-ethical self score, personal self score and a social self score. Appropriate analyses using these individual scores were also made. They are referred to when necessary in the next chapter of this dissertation. It has also been administered to pregnant couples and couples receiving genetic counseling.

The normative data were based on a group of 626 subjects from various parts of the country, from age 12 to 68, with equal numbers of both sexes, including blacks and whites representative of all social, economic, intellectual, and educational levels from grade six through the Ph.D. level. Subjects were obtained from high school and college classes and employers at state institutions, among others. Scores are reported on profile forms using a standard score system.

The validity data are extensive. For example, studies are reported showing the ability of the TSCS to clinically discriminate among patient

groups, such as, paranoid schizophrenics, depressive reactions, and emotionally unstable personalities on selected subscales of the TSCS (Huffman, 1964). Correlation of the TSCS with both the Minnesota Multiphasic Personality Inventory (McGee, 1960) and the Edwards Personal Preference Schedule is also reported. The correlations with the MMPI were in the desired direction, while values for the Edwards Personal Preference Schedule were low but could be explained through the difference in nature of the two scales. Correlation studies with other personality measures were also reported.

Test-retest, over a two week period based on 60 college students, yielded reliabilities ranging from .60 to .92 for all subscores. In a study by Congdon (1958), using a shortened version of the TSCS on psychiatric patients, a reliability coefficient of .88 was obtained for the total positive score.

The reasons why this particular instrument was selected for use was because of its sound reliability and validity data, its previous use with pregnant populations, and the existence of both a total and sub-component self-concept scores.

Sources of Data

Treatment Group

Twenty-five women and their husbands who received the results of a midtrimester amniocentesis comprised the treatment group in this study. The subjects were initially contacted through a short informational pamphlet (See Appendix A) given them by a genetic counselor (N = 19), an obstetrician (N = 1), childbirth preparation instructors (N = 4), or were self-

referred (N = 1). All of the amniocenteses were performed in the Baltimore, MD - Washington, D.C. metropolitan areas. Nineteen of the couples had the amniocentesis performed at a Baltimore hospital-affiliated clinic; four couples had the amniocentesis performed at a Washington, D.C. hospital-affiliated clinic; and, two couples had the amniocentesis performed at a private amniocentesis facility located in Northern Virginia. Each of the 25 couples were interviewed at home on two occasions. The first home interview occurred approximately two weeks after the amniocentesis was performed ($\bar{X}$ = 19.26 gestational weeks) and the second home interview was scheduled approximately one month after the first home interview ($\bar{X}$ = 24.5 gestational weeks). During each of the home interviews, the women were interviewed by the female researcher and their husbands were interviewed by a male research assistant. This was done to put each of the subjects at ease and to eliminate any bias that the sex of the interviewer might have in the interview situation.

Demographic information was collected during the first home interview for both the women and the men. Key demographic data are presented in the following sections of this chapter.

Age. The mean age of the treatment group women was 36.12 years. There was a standard deviation of 2.455 years. The age of these women ranged from a low of 30 years to a high of 40 years.

The treatment group men were older, on the average, than their wives. The mean age for this group was 37.52 years with a standard deviation of 5.508 years. There was a wider age range in this group. The youngest age reported was 31 years and the oldest reported age was 53. Tables containing

frequency distributions of the ages reported by both amniocentesis women and men can be found in Appendix J.

Race and Citizenship. Twenty-four of the treatment group couples reported their race as white. One couple reported their race as black. There were no interracial couples in this group.

All of the treatment group reported being American citizens. One woman reported being a naturalized American citizen.

Religion. Table 1 contains a frequency distribution of reported religious affiliation for both amniocentesis women and men.

Table 1

Frequency Distribution of Religious Affiliation For Treatment Group Women and Men

Religion	Amniocentesis Women		Amniocentesis Men	
	Absolute frequency	Relative frequency (%)	Absolute frequency	Relative frequency (%)
Protestant	19	76.0	12	48.0
Catholic	2	8.0	3	12.0
Jewish	4	16.0	8	32.0
Other	0	0.0	1	4.0
None	0	0.0	1	4.0
Total	25	100.0	25	100.0

To summarize the data presented in Table 1, it would seem that 98% of the treatment group reported a religious affiliation. The three most frequently

reported affiliations were to Protestant, Jewish, and Catholic religious sects.

Education. The mean educational level attained by the treatment group women was 15.96 years. There was a standard deviation of 3.405 years. The women's educational achievement ranged from a tenth grade level to a doctorate degree.

The educational level for the men was higher than that obtained by the women. Their mean educational level obtained was 17.76 years with a standard deviation of 4.512 years. The men's educational achievement ranged from the completion of high school to post-doctoral work.

Table 2 contains a frequency distribution of the college degrees obtained for both the men and the women.

Table 2

Frequency Distribution of College Degrees For Treatment Group Men and Women

Type of degree held	Women		Men	
	Absolute frequency	Absolute frequency (%)	Absolute frequency	Relative frequency (%)
Bachelor degree	6	24.0	5	20.0
Master degree	9	36.0	6	24.0
Doctoral degree	1	4.0	7	28.0
Other: Law/Med.	1	4.0	1	4.0
None	8	32.0	6	24.0
Total	25	100.0	25	100.0

Employment and Income. Seventeen of the 25 treatment group women reported being employed full time. The other eight women reported that they were at home caring for their families. For those women who were employed, their average yearly earnings fell into the $11,000-$15,000 bracket. The lowest yearly salary bracket reported was the $1-$5,000 a year bracket. The highest yearly salary bracket was the $36,000-$40,000 a year bracket.

All of the treatment group men reported being employed full time. The average yearly salary bracket for men was the $26,000-$30,000 bracket. The lowest salary bracket reported for the men was the $11,000-$15,000 a year income bracket and the highest salary bracket reported was the $46,000-$50,000 a year bracket.

When the incomes of both the men and the women were combined, the average yearly income was found to fall within the $41,000-$45,000 a year bracket. The lowest combined income bracket was found to be the $11,000-$15,000 a year bracket, while the highest combined income bracket for this group was the $86,000-$90,000 a year bracket.

A table listing the various occupations of both treatment group women and men can be found in Appendix K.

Amniocentesis Experience. Of the 25 women having an amniocentesis performed, 21 of them (84%) reported that it was their first amniocentesis, three of them (12%) reported that it was their second amniocentesis, and one woman (4%) reported that it was her third amniocentesis. The three most frequently reported reasons for having the test performed were: advanced maternal age (N = 18), maternal anxiety (N = 4), and previous

birth of a handicapped child (N = 3). Two of the handicapped children had Down's Syndrome and the third child had hydrocephalus. One of the Down's children died shortly after birth. For eight of the women this was their first pregnancy. The other 17 women reported having one or more children living at home. As to the desirability of the pregnancy, all of the couples reported it as being highly desired although only 18 of the couples reported that the pregnancy was planned. The other couples (N = 7) reported that it was not planned.

Twenty-four of the 25 women who had an amniocentesis performed were found to be carrying a single fetus. One of the women was found to be carrying triplets. Of the 27 amniocenteses performed, all came back negative which meant that all of the fetuses were found to be free of the various handicapping conditions tested for. From the test results, it was determined that 22 of the fetuses were female and four of the fetuses were male. One couple did not wish to know the sex of the fetus.

Comparison Group

Twenty-five women who were in their fifth month of pregnancy, not having an amniocentesis performed, were at least 30 years of age and were under the prenatal care of a doctor, and their husbands comprised the second most important source of data, the comparison group. These couples were contacted in one of the following ways: childbirth preparation instructors (N = 21) using the informational pamphlets or telephone scripts (See Appendices A and B), from already participating subjects (N = 3), and from posted notices (N = 1). Twenty of the 25 comparison group couples resided in or near the Washington, D.C. metropolitan area. Five of the

couples resided in or near the Baltimore, Md. metropolitan area. All of the couples were interviewed at home on two occasions. The first home interview occurred during the fifth month of pregnancy ($\bar{X}$ = 19.52 gestational weeks) and the second home interview scheduled approximately one month after the first occurred during the sixth month of pregnancy ($\bar{X}$ = 24.52 gestational weeks). The interview technique previously described for the treatment group was again employed. The women were interviewed on both occasions by the female researcher and their husbands were interviewed by the male research assistant.

Demographic information collected during the first home interview for both the comparison group women and men are presented in the following sections of this chapter.

Age. The mean age of the comparison group women was 31.64 years. There was a standard deviation of 1.319 years. The age of these women ranged from a low of 30 to a high of 35 years.

The comparison group men were older, on the average, than their wives. the mean age for the men was 32.0 years with a standard deviation of 2.708 years. There was a wider age range for the men also. The youngest age reported was 27 years and the oldest reported age was 37. Appendix J contains frequency distributions of the ages reported by both comparison group women and men.

Race and citizenship. Twenty-two of the comparison group couples reported their race as white. Two of the couples reported their race as black. There was one interracial couple. All of the couples reported being American citizens.

Religion. Table 3 contains a frequency distribution of reported religious affiliation for both comparison group women and men.

Table 3

Frequency Distribution of Religious Affiliation For Comparison Group Women and Men

	Comparison Group Women		Comparison Group Men	
Religion	Absolute frequency	Relative frequency (%)	Absolute frequency	Relative frequency (%)
Protestant	9	36.0	8	32.0
Catholic	5	20.0	5	20.0
Jewish	6	24.0	6	24.0
Other	4	16.0	2	8.0
None	1	4.0	4	16.0
Total	25	100.0	25	100.0

To summarize the data presented in Table 3, it would seem that 90% of the comparison group reported a religious affiliation. The three most frequently reported affiliations were to Protestant, Jewish, and Catholic religious sects.

Education. The mean educational level attained by the comparison group women was 16.92 educational years. There was a standard deviation of 2.379 years. The women's educational achievement ranged from the completion of high school to post-doctoral work.

The educational level for the men was higher on the average than that obtained by their wives. The men's mean educational level was 18.32 educational years with a standard deviation of 2.83 educational years. The men's educational achievement ranged from the completion of two years of college to post-doctoral work.

Table 4 contains a frequency distribution of the college degrees obtained for both the comparison group women and men.

Table 4

Frequency Distribution of College Degrees For Comparison Group Women and Men

	Women		Men	
Type of degree held	Absolute frequency	Absolute frequency (%)	Absolute frequency	Absolute frequency (%)
Bachelor degree	11	44.0	6	24.0
Master degree	9	36.0	3	12.0
Doctoral degree	1	4.0	7	28.0
Other: Law/Med.	0	0.0	5	20.0
None	4	16.0	4	16.0
Total	25	100.0	25	100.0

Employment and income. Nineteen of the 25 comparison group women reported being employed full time. The other six women reported that they were at home caring for their families. For those women who were employed, their average yearly earnings fell into the $11,000-$15,000 bracket. The

lowest yearly salary bracket reported was the $1-$5,000 a year bracket. The highest yearly salary bracket was the $36,000-$40,000 a year bracket.

All of the comparison group men reported being employed full time. The average yearly salary bracket for men was the $31,000-$35,000 bracket. The lowest salary bracket reported for the men was the $11,000-$15,000 a year salary bracket and the highest salary bracket reported was the $96,000-$100,000 a year bracket.

When the incomes of both the men and the women were combined, the average yearly income was found to fall within the $46,000-$50,000 a year bracket. The lowest combined income bracket was found to be the $16,000-$20,000 a year bracket, while the highest combined income bracket for this group was the $121,000-$125,000 a year bracket.

A table listing the various occupations of both comparison group women and men can be found in Appendix L.

Pregnancy experience. Fourteen of the comparison group women reported that this was their first pregnancy. Ten women reported that it was their second pregnancy and one woman reported that this was her seventh pregnancy. Ten of the 25 comparison group women had a sonogram performed during their pregnancy, while the remaining 15 women had routine prenatal care. The three main reasons reported for having the sonogram performed was because of first trimester bleeding (N = 5), doctor's recommendation (N = 4), and possible multiple birth situation (N = 1). Three of the women reported a previous birth of a handicapped child. Those children were all alive and living in the home with their mother. The handicapping conditions were minimal brain damage and congenital heart and kidney defects.

Twenty of these couples reported that this pregnancy was planned and five couples reported that it was not. When asked how confident they were that the fetus they were carrying was normal, 48% of the couples (N = 12) responded that they were sure the baby would be fine, while 52% of the couples (N = 13) reported that they were not sure but hoped that the baby would be fine.

Data Collection

Home Visit I

Upon arrival at the participant's home, the researcher introduced herself and her assistant. Any questions the couple had about the study and their participation were answered. Afterwards, both participants were asked to read and sign the Informed Consent Form (See Appendix D). A copy of this form was given to the couple. Each member of the couple was interviewed in private by either the researcher or her assistant. The interview consisted of either four or five parts: (a) demographic information (See Appendix E); (b) Knowledge of and Willingness to use prenatal diagnostic techniques - comparison group only (See Appendix F); (c) Amniocentesis Experience - treatment group only (See Appendix G); (d) IPAT Anxiety Scale Questionnaire (See Appendix H); and, (e) Tennessee Self Concept Scale (See Appendix I). When both participants were finished, a sixth month appointment was arranged.

Home Visit II

One week prior to the sixth month appointment the researcher contacted the participants by mail to reaffirm the appointment. During the sixth month visit, a more truncated version of the fourth month interview was

administered. The participants again responded individually to the Amniocentesis Experience component (treatment couples only), the IPAT, and the TSCS. Upon completion of the interview, the participants were thanked profusely by both the researcher and her assistant for their cooperation and assistance. A brief explanation of the study and their part in it was given. The couple was then informed of the tentative date for the completion of the study and the approximate date for receiving a copy of the results.

Data Analysis

The following table summarized the independent and dependent variables and listed the appropriate statistical tests that were used in testing each hypothesis.

The statistical tests, ANOVA and correlated t-test, allowed the researcher to answer the question: Is there an overall indication that the experimental treatment has produced differences among the means of the various groups?

The analyses were performed by the Statistical Package for the Social Sciences computer programs (SPSS-V8) entitled T-TEST and ONEWAY. The first program, T-TEST, performed a correlated t-test which compared the means on two variables from the same sample. This test was required for testing hypotheses 1, 2, 7, and 8. The ONEWAY program computed the necessary one-way analyses of variance and tests of significance for hypotheses 3, 4, 5, 6, 9, 10, 11, and 12. The actual computations were performed by the UNIVAC 1108 computer located at the University of Maryland, College Park campus.

The results of the analysis of variance were displayed in a table

Table 5

Summary of Independent and Dependent Variables

and Statistical Tests

Hypotheses	Variables		Statistical tests
	Independent	Dependent	
1	Knowledge of the results of the amniocentesis	Woman's score on the fourth and sixth month ASQ	Correlated T-Test
2	Knowledge of the results of the amniocentesis	Man's score on the fourth and sixth month ASQ	Correlated T-Test
3	Direct physical experience and anticipated consequences of the amniocentesis	Woman's and man's score on the fourth month ASQ	ONEWAY ANOVA
4	Knowledge of the results of the amniocentesis	Woman's and man's score on the sixth month ASQ	ONEWAY ANOVA

Table 5 continued

Hypotheses	Variables		Statistical tests
	Independent	Dependent	
5	Experience of having an amniocentesis performed	Woman's scores on the ASQ	ONEWAY ANOVA
6	Experience of wife having an amniocentesis performed	Man's scores on the ASQ	ONEWAY ANOVA
7	Knowledge of the results of the amniocentesis	Woman's scores on the fourth and sixth month TSCS	Correlated T-Test
8	Knowledge of the results of the amniocentesis	Man's scores on the fourth and sixth month TSCS	Correlated T-Test
9	Direct physical experience and anticipated consequences of the amniocentesis	Woman's and man's score on the fourth month TSCS	ONEWAY ANOVA

Table 5 continued

Hypotheses	Variables		Statistical tests
	Independent	Dependent	
10	Knowledge of the results of the amniocentesis	Woman's and man's score on the sixth month TSCS	ONEWAY ANOVA
11	Experience of having an amniocentesis performed	Woman's scores on the TSCS	ONEWAY ANOVA
12	Experience of wife having had an amniocentesis performed	Man's scores on the TSCS	ONEWAY ANOVA

similar to Table 6 and the results of the paired sample t-tests were displayed in a table similar to Table 7.

Table 6

The Analysis of Variance Summary Table

Source	SS	df	MS	F	P
Treatments (between)	$\Sigma\frac{(\Sigma Y_{ij})^2}{n_j} - \frac{(\Sigma\Sigma Y_{ij})^2}{N}$	J-1	$\frac{\text{SS between}}{J-1}$	$\frac{\text{MS between}}{\text{MS within}}$	
Error (within)	$\Sigma\Sigma Y^2_{ij} - \Sigma\frac{(\Sigma y_{ij})^2}{n_j}$	N-J	$\frac{\text{SS within}}{N-J}$		
Total	$\Sigma\Sigma y^2_{ij} - \frac{(\Sigma\Sigma y_{ij})^2}{N}$	N-1			

Table 7

The t-Test Summary Table

Variable	N	M	SD	df	t	P
Variable 1 Variable 2	N	$\Sigma\frac{X}{N}$	$\frac{\Sigma(X-\bar{X})^2}{N}$	N-1	$\frac{(X_1-X_2) - (\mu_1-\mu_2)}{S_{x_1-x_2}}$	

Design Limitations

The nature of this study prohibited the usage of random selection and random assignment to treatment and comparison groups and thus moved this study from the realm of the experimental to the realm of the quasi-experimental. This study's design was similar to Campbell and Stanley's (1963) Nonequivalent Control Group Design in that the treatment and comparison groups were both given pretests and posttests and that there was no pre-experimental sampling equivalence. It differed from it in that the assignment of the treatment to one group or another was not random or under the experimenter's control, that is, the respondents were clearly self-selected and no control group was available from this same population of seekers. While the "self-selected" design was recognized as weak, it did provide information which in many instances could rule out the hypothesis that the treatment has had an effect (Campbell & Stanley, p. 50). The presence of a comparison group, even though widely divergent in method of recruitment assisted in the interpretation.

Besides those limitations mentioned in the preceding paragraph (non-randomness, no control of the treatment or its assignment, self-selectivity of the subjects), there was only one other apparent threat to validity and that was the possible interaction effect of selection biases and the treatment. It was recognized that all the factors that have been mentioned as possible threats to internal and external validity limited the generalizability of this study's results.

Chapter IV

The Results of the Study

The data analyses for the 12 major hypotheses are presented in this chapter according to the two dependent variables, anxiety and self concept. The following format was used for the presentation.

1. Statement of the Hypotheses
2. Results of the Hypotheses Tested
3. Section Summary

The chapter was concluded with a discussion of the findings as they related to the research questions put forth in Chapter One.

To assist in the understanding of the following sections of the chapter the following definitions should be recalled:

Treatment - Knowledge of the results of an amniocentesis performed in the fifth month of pregnancy.

Treatment Group - comprised of all women who had an amniocentesis performed during the fifth month of pregnancy and their husbands.

Comparison Group - comprised of all pregnant women who did not have an amniocentesis performed during the fifth month of pregnancy and their husbands.

Hypotheses Related to Anxiety

The six hypotheses tested in this part of the chapter were stated in the null form and were as follows:

Hypothesis 1: There are no significant changes in women's anxiety level pre and post treatment.

Hypothesis 2: There are no significant changes in men's anxiety level pre and post treatment

Hypothesis 3: There are no significant differences in level of anxiety between women and men before the treatment.

Hypothesis 4: There are no significant differences in level of anxiety for women and men after the treatment.

Hypothesis 5: There are no significant differences in anxiety level for the treatment or comparison group women.

Hypothesis 6: There are no significant differences in anxiety level for the treatment or comparison group men.

The results of the hypotheses that were tested follow.

Hypothesis 1

To determine if there were any significant changes in the anxiety level of the treatment group women after receiving the negative amniocentesis results, a correlated t-Test was performed on their fifth and sixth month Anxiety Scale Questionnaire (ASQ) Total scores. Table 8 presents the results of the analysis.

Table 8

Correlated t-Test of Amniocentesis Women's Fifth and Sixth Month ASQ Total Scores

Variable	N	M	SD	df	t	p
Fifth month total score	25	27.7200	11.182	24	.70	.488+
Sixth month total score		27.0000	10.452			

Note. + = p > .05

Inspection of this table indicates that there were no statistically significant changes in amniocentesis women's anxiety level after receiving the negative test results. The null hypotheses failed to be rejected.

Hypothesis 2

To determine if there were any significant changes in the anxiety level of the treatment group men after receiving the negative amniocentesis results, a correlated t-Test was performed on their fifth and sixth month ASQ Total scores. Table 9 presents the results of the analysis.

Table 9

Correlated t-Test of Amniocentesis Men's Fifth and Sixth Month ASQ Total Scores

Variable	N	M	SD	df	t	p
Fifth month total score	25	18.9600	8.988	24	.73	.475+
Sixth month total score		18.1600	9.547			

Note. + = $p > .05$

Inspection of this table indicated that there were no statistically significant changes in amniocentesis men's anxiety level after receiving the negative test results. The null hypothesis failed to be rejected.

Hypothesis 3

To determine if there were any significant differences in the women's and men's level of anxiety prior to receiving the results of the

amniocentesis, a oneway analysis of variance was performed on their fifth month ASQ Total scores. Table 10 presents the results of the analysis.

Table 10

Oneway Analysis of Variance on the Amniocentesis Women's and Men's Fifth Month ASQ Total Scores

Source	SS	df	MS	F	P
Between groups	959.2199	1	959.2199	9.320	.003**
Within groups	4939.9997	48	102.9167		
Total	5899.2195	49			

Note. ** = $p < .01$

Inspection of this table indicates that there were statistically significant differences ($p < .01$) in the women's and men's anxiety scores prior to receiving the results of the amniocentesis. The null hypothesis was, therefore, rejected. An examination of the means and standard deviations of the fifth month anxiety scores revealed that it was the women who were more anxious on the average ($\overline{X}$ = 27.7200, SD = 11.1823), than their husbands ($\overline{X}$ = 18.9600, SD = 8.9883).

Hypothesis 4

To determine if there were any significant differences in the women's and men's level of anxiety after receiving the results of the amniocentesis, a oneway analysis of variance was performed on their

sixth month ASQ Total scores. Table 11 presents the results of the analysis.

Table 11

Oneway Analysis of Variance on the Amniocentesis Women's and Men's Sixth Month ASQ Total Scores

Source	SS	df	MS	F	p
Between groups	976.8200	1	976.8200	9.749	.003**
Within groups	4809.3598	48	100.1950		
Total	5786.1797	49			

Note. ** = $p < .01$

Inspection of this table indicates that there were statistically significant differences ($p < .01$) in the women's and men's anxiety scores after receiving the results of the amniocentesis. The null hypothesis was therefore rejected. An examination of the means and standard deviations of the sixth month anxiety scores revealed that the women were, once again, more anxious on the average ($\overline{X}$ = 27.000, SD = 10.4523) than their husbands ($\overline{X}$ = 18.1600, SD = 9.5467).

Hypothesis 5

To determine if there were any significant differences in the anxiety levels of women who had an amniocentesis and pregnant women who did not, a oneway analysis of variance was performed on both the fifth and sixth month ASQ Total scores. Table 12 contains the results of the

fifth month ASQ analysis and Table 13 contains the sixth month ASQ analysis results.

Table 12

Oneway Analysis of Variance on the Fifth Month ASQ Total Scores for Treatment and Comparison Group Women

Source	SS	df	MS	F	P
Between groups	87.1198	1	87.1198	.754	.3895+
Within groups	5544.7996	48	115.5167		
Total	5631.9194	49			

Note. + = p > .05

Table 13

Oneway Analysis of Variance on the Sixth Month ASQ Total Scores for Treatment and Comparison Group Women

Source	SS	df	MS	F	P
Between groups	98.0002	1	98.0002	.917	.343+
Within groups	5127.9997	48	106.8333		
Total	5225.9998	49			

Note. + = p > .05

Inspection of both tables indicates that there were no statistically significant differences in the anxiety levels of women who had amniocentesis and those pregnant women who did not. The null hypothesis failed to be rejected.

Hypothesis 6

To determine if there were any significant differences in the anxiety levels of men whose wives had an amniocentesis and men whose pregnant wives did not, a oneway analysis of variance was performed on both the fifth and sixth month ASQ Total scores. Table 14 contains the results of the fifth month ASQ analysis and Table 15 contains the sixth month ASQ analysis results.

Table 14

Oneway Analysis of Variance on the Fifth Month ASQ Total Scores for Treatment and Comparison Group Men

Source	SS	df	MS	F	p
Between groups	420.5000	1	420.5000	6.261	.0158*
Within groups	3223.5198	48	67.1567		
Total	3644.0198	49			

Note. * = $p < .05$

Table 15

Oneway Analysis of Variance on the Sixth Month ASQ Total Scores for Treatment and Comparison Group Men

Source	SS	df	MS	F	p
Between groups	397.6201	1	397.6201	5.218	.0268*
Within groups	3657.3598	48	76.1950		
Total	4054.9799	49			

Note. * = $p < .05$

Inspection of both tables indicates that there were statistically significant differences in levels of anxiety on both the fifth month ($p < .05$) and sixth month ($p < .05$) anxiety scores for the treatment and comparison groups. The null hypothesis was, therefore, rejected. An examination of the means and standard deviations of the fifth month scores revealed that the comparison group men were more anxious on the average ($\overline{X}$ = 24.7600, SD = 7.3160) than the treatment group men ($\overline{X}$ = 18.9600, SD = 9.9883). A comparison of the sixth month anxiety scores revealed a similar pattern. The comparison group men were again more anxious on the average ($\overline{X}$ = 23.8000, SD = 7.8262) than the treatment group men ($\overline{X}$ = 18.1600, SD = 9.5467).

Summary of Anxiety Results

The following table summarizes the results of the testing of the six hypotheses related to the dependent variable, anxiety.

A Summary of the Anxiety Related Hypotheses, Independent and Dependent Variables, Statistical Tests, and Results.

Hypothesis	Independent variable	Dependent variable	Statistical test	Results - the null hypothesis was:
1	Knowledge of the results of the amniocentesis	Treatment group women's fifth and sixth month ASQ total scores	Correlated t-Test	Supported
2	Knowledge of the results of the amniocentesis	Treatment group men's fifth and sixth month ASQ total scores	Correlated t-Test	Supported
3	Direct physical experience and anticipated consequences of the amniocentesis	Treatment group's fifth month ASQ total scores	ONEWAY ANOVA	Rejected
4	Knowledge of the results of the amniocentesis	Treatment group's sixth month ASQ total scores	ONEWAY ANOVA	Rejected
5	Direct physical experience and anticipated consequences of the amniocentesis	Fifth and sixth month ASQ total scores for both groups of women	ONEWAY ANOVA	Supported
6	Experience with and knowledge of the results of the amniocentesis	Fifth and sixth month ASQ total scores for both groups	ONEWAY ANOVA	Rejected

Hypotheses Related to Self Concept

The six hypotheses tested in this part of the chapter were stated in the null form and were as follows:

Hypothesis 7: There are no significant changes in women's self concept pre and post treatment.

Hypothesis 8: There are no significant changes in men's self concept pre and post treatment.

Hypothesis 9: There are no significant differences in self concept for women and men before the treatment.

Hypothesis 10: There are no significant differences in self concept for women and men after the treatment.

Hypothesis 11: There are no significant differences in self concept for treatment and comparison group women.

Hypothesis 12: There are no significant differences in self concept for treatment and comparison group men.

Before the results are presented, it should be noted that the Tennessee Self Concept Scale (TSCS) Total score was used as the measure of self concept in the testing of all the hypotheses. Only when the Total score analyses reached the statistically significant level of $p \leq .05$, were the null hypotheses rejected. The component Self scores--Self Satisfaction, Behavior, Physical Self, Moral-Ethical Self, Personal Self, Family Self, Social Self--were mentioned whenever they were found to have obtained statistical levels of significance. These scores were not, however, used to reject the null hypotheses.

The results of the hypotheses tested follow.

Hypothesis 7

To determine if there were any significant changes in the self concept of the treatment group women after receiving the negative results of the amniocentesis, a correlated t-Test was performed on their fifth and sixth month TSCS Total scores. Table 16 presents the results of the analysis.

Table 16

Correlated t-Test of Amniocentesis Women's Fifth and Sixth Month TSCS Total Scores

Variable	N	M	SD	df	t	p
Fifth month total score	25	375.2400	29.516	24	-1.09	.287+
Sixth month total score		377.8000	29.537			

Note. + = p > .05

Inspection of this table indicates that there were no statistically significant changes in amniocentesis women's Total self concept scores after receiving the negative results of the test. The null hypothesis failed to be rejected. An examination of the various components of the TSCS Total score did, however, reveal that there was a significant increase ($p < .05$) in the amniocentesis women's Personal Self score. The Personal Self score (PS) reflects the individual's sense of personal worth, and feelings of adequacy as a person. Table 17 presents the

results of the correlated t-Test performed on the fifth and sixth month TSCS Personal Self scores.

Table 17

Correlated t-Test of Amniocentesis Women's Fifth and Sixth Month Personal Self Scores

Variable	N	M	SD	df	t	p
Fifth month PS score	25	72.8000	7.018	24	-2.53	.018*
Sixth month PS score		74.2000	7.065			

Note. * = $p < .05$

Hypothesis 8

To determine if there were any significant changes in the self concept of treatment group men after receiving the negative amniocentesis results, a correlated t-Test was performed on their fifth and sixth month TSCS Total scores. Table 18 presents the results of the analysis.

Inspection of this table indicates that there were no statistically significant changes in the amniocentesis men's self concept after receiving the results of the test. The null hypothesis failed to be rejected.

Table 18

Correlated t-Test of Amniocentesis Men's Fifth and Sixth Month TSCS Total Scores

Variable	N	M	SD	df	t	p
Fifth month total score	25	377.7600	26.768	24	.45	.66+
Sixth month total score		376.0800	26.298			

Note. + = p > .05

Hypothesis 9

To determine if there were any significant differences in the women's and men's self concept prior to receiving the results of the amniocentesis, a oneway analysis of variance was performed on their fifth month TSCS Total scores. Table 19 presents the results of the analysis.

Table 19

Oneway Analysis of Variance on the Amniocentesis Women's and Men's Fifth Month TSCS Total Scores

Source	SS	df	MS	F	p
Between groups	79.3441	1	79.3441	.100	.753+
Within groups	38105.1174	48	793.8566		
Total	38184.4614	49			

Note. + = p > .05

Inspection of this table indicates that there were no statistically significant differences in the self concepts of women and men prior to receiving the results of the amniocentesis. The null hypothesis failed to be rejected.

Hypothesis 10

To determine if there were any significant differences in the women's and men's self concepts after receiving the negative results of the amniocentesis, a oneway analysis of variance was performed on their sixth month TSCS Total scores. Table 20 presents the results of the analysis.

Table 20

Oneway Analysis of Variance on the Amniocentesis Women's and Men's Sixth Month TSCS Total Scores

Source	SS	df	MS	F	p
Between groups	36.9800	1	36.9800	.047	.828+
Within groups	37535.8379	48	781.9966		
Total	37572.8179	49			

Note. + = $p > .05$

Inspection of this table indicates that there were no statistically significant differences in the women's and men's self concept after receiving the results of the amniocentesis. The null hypothesis failed to be rejected. An examination of the various components of the TSCS

scores did, however, reveal one area in which there were increases which approached significance ($p = .07$). The area was the Moral-Ethical Self score. This score reflects the individual's feelings of moral worth, of being a "good" or "bad" person, and satisfaction with one's religion or lack of it. It was found that after receiving the negative amniocentesis results the women felt more positive ($\bar{X} = 47.20$, $SD = 29.0861$) about their moral-ethical selves than did their husbands ($\bar{X} = 33.20$, $SD = 25.6125$).

Hypothesis 11

To determine if there were any significant differences in the self concepts of women who had an amniocentesis and those pregnant women who did not, a oneway analysis of variance was performed on both the fifth and sixth month TSCS Total scores. Table 21 contains the results of the fifth month TSCS analysis and Table 22 contains the sixth month TSCS analysis results.

Table 21

Oneway Analysis of Variance on the Fifth Month TSCS Total Scores for Treatment and Comparison Group Women

Source	SS	df	MS	F	p
Between groups	2620.8448	1	2620.8448	2.947	.0925+
Within groups	42687.1172	48			
Total	45307.1172	49			

Note. + = $p > .05$

Table 22

Oneway Analysis of Variance on the Sixth Month TSCS Total Scores for Treatment and Comparison Group Women

Source	SS	df	MS	F	p
Between groups	2271.4153	1	2271.4153	2.797	.1010+
Within groups	38981.4375	48	812.1133		
Total	41252.8525	49			

Note. + = $p > .05$

Inspection of both tables indicates that while the differences in the self concepts of women who had amniocentesis and those pregnant women who did not approached significance, they did not attain it. The null hypothesis failed to be rejected. An examination of the various components of the fifth month TSCS scores revealed no areas approaching or attaining significance. On the sixth month TSCS component scores, however, there were two areas which required mentioning. The Self Satisfaction scores for the amniocentesis women were higher on the average ($\overline{X}$ = 120.64, SD = 11.8564) than those obtained by the women who did not have an amniocentesis performed ($\overline{X}$ = 114.20, SD = 12.5333) although the differences were not significant ($p = .06$). The Self Satisfaction score describes how an individual feels about the self that is perceived and reflects the level of self satisfaction or self acceptance. In the area of Personal Self, the amniocentesis women were found to have significantly higher ($p = .02$) scores than the women who were pregnant but did not have an amniocentesis performed.

Hypothesis 12

To determine if there were any significant differences in the self concepts of men whose wives had an amniocentesis and men whose wives did not, a oneway analysis of variance was performed on both the fifth and sixth month TSCS Total scores. Table 23 contains the results of the fifth month TSCS analysis and Table 24 contains the sixth month TSCS analysis results.

Table 23

Oneway Analysis of Variance on the Fifth Month TSCS Total Scores for Treatment Group and Comparison Group Men

Source	SS	df	MS	F	p
Between groups	3232.0804	1	3232.0804	4.804	.0333*
Within groups	32293.9982	48	672.7916		
Total	35526.0781	49			

Note. * = $p < .05$

Table 24

Oneway Analysis of Variance on the Sixth Month TSCS Total Scores for Treatment and Comparison Group Men

Source	SS	df	MS	F	p
Between groups	2048.0351	1	2048.0351	2.812	.1000+
Within groups	34954.8784	48	728.2266		
Total	37002.9131	49			

Note. + = p > .05

Inspection of both tables indicates that there were statistically significant differences in self concepts of men whose wives had an amniocentesis and men whose wives did not on the fifth month TSCS Total scores ($p < .05$) but not on the sixth month scores ($p = .10$). The null hypothesis was, therefore, rejected. An examination of the fifth month TSCS data reveals a number of interesting points. In terms of the Total score, it was found that the treatment group men had statistically higher self concept scores ($\bar{X} = 377.76$, SD = 26.7680) when compared with the comparison group men ($\bar{X} = 361.68$, SD = 25.0811). When the various component TSCS scores were examined, it was found that the treatment group men had statistically higher scores than the comparison group men in the following areas: Self Satisfaction ($p = .05$), Behavior ($p = .01$), Personal Self ($p = .008$), and Social Self ($p = .003$). The Behavior score which has not been previously described measures the individual's perception of his own behavior or way of functioning, while the Social

Self measures a person's sense of adequacy and worth in his social interactions with other people in general. When the sixth month TSCS subcomponent scores were similarly examined, it was found that the amniocentesis men had statistically higher scores than the men whose wives did not have an amniocentesis in two areas, Personal Satisfaction ($p = .05$) and Social Self ($p = .008$). In the area of Moral-Ethical Self, a reverse situation was found. On this score, it was the comparison group men who scored statistically higher ($p = .01$) than the treatment group men. As has been mentioned, the Moral-Ethical Self Score reflects a person's feelings of moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.

Summary of Self Concept Results

The following table summarizes the results of the testing of the six hypotheses related to the dependent variable, self concept.

A Summary of the Self Concept Hypotheses, Independent and Dependent Variables, Statistical Tests, and Results

Hypothesis	Independent variable	Dependent variable	Statistical test	Results - the null hypothesis was:
7	Knowledge of the results of the amniocentesis	Treatment group women's fifth and sixth month TSCS total scores	Comparison t-Test	Supported
8	Knowledge of the results of the amniocentesis	Treatment group men's fifth and sixth month TSCS total scores	Comparison t-Test	Supported

9	Direct physical experience of having an amniocentesis	Treatment group's fifth and sixth month TSCS total scores	ONEWAY ANOVA	Supported
10	Knowledge of the results of the amniocentesis	Treatment group's fifth and sixth month TSCS total scores	ONEWAY ANOVA	Supported
11	Direct physical experience of having an amniocentesis	Fifth and sixth month TSCS total scores for both groups of women	ONEWAY ANOVA	Supported
12	Experience with and knowledge of the results of the amniocentesis	Fifth and sixth month TSCS total scores for both groups of men	ONEWAY ANOVA	Rejected

Discussion of the Results

In this concluding section of Chapter Four, the results are discussed in terms of providing answers to the three research questions set forth in the first chapter. Those research questions were:

1. Do the individuals' levels of anxiety or self concept change after receiving the results of the amniocenteses?

2. Are there differences in women's and men's levels of anxiety and self concept before or after receiving the results of the amniocenteses?

3. Are the levels of anxiety and self concept of couples who have amniocenteses different from the levels of anxiety and self concept of couples who are pregnant but do not have amniocenteses?

Question 1

In terms of anxiety, no statistically significant changes were found to occur for either the women or men as a result of receiving negative amniocentesis results. This finding of no change pre and post treatment coincided with the Ashery (1975) findings of no change in anxiety level as measured by the State-Trait Anxiety Index. It did, however, contrast sharply with the findings of Astbury and Walters (1979), Beeson and Golbus (1979), Duncan et al. (1976), Robinson et al. (1975), Golbus et al. (1974), and Fletcher (1972). These researchers found through either direct measurement or verbal report significant reductions in anxiety for those individuals who received negative amniocentesis results. One reason for this finding of no significant change in anxiety level may be, as Ashery (1975) posited, a result of the couples' perception of amniocentesis as a non-crisis situation. During the waiting period, 64% of the women and 72% of the men said they were certain that the baby they were carrying was normal. The remaining women and men reported that while not being 100% certain they felt the baby would be fine. This pre-result certainty exhibited by the amniocentesis couples could in fact preclude a significant reduction in anxiety since the actual test results would simply be relegated to the realm of already known facts. Robinson, Tennes, and Robinson (1975) underscored this point of a no crisis situation when they reported that women in the 35-39 age group had the lowest anxiety about the amniocentesis, the results, and its aftereffects. They found that these women viewed the test as part of good prenatal care and were usually following doctor's orders with an inner certainty that their babies would be fine.

Another possible explanation of the finding of no change in anxiety level pre and post amniocentesis results was that these couples heeded the warnings of their genetic counselors that negative test results did not mean the child could not be born handicapped. Each of the 25 couples made some comment during the last home interview that indicated an awareness of and concern for the possible existence of an untested handicap as well as the possibility of a handicap resulting from labor and delivery complications. In other words, it was possible that while one set of concerns was eliminated by the negative results of the amniocentesis, other concerns took their place and thus prevented a significant reduction in amniocentesis couples' anxiety levels. Finally it must not be overlooked that the pregnancy literature is replete with references that indicate pregnancy in and of itself is an anxiety producing experience (Benedek, 1956; Bibring, 1959; Cohen, 1966: Colman & Colman, 1973; Deutsch, 1945; Goodrich, 1961; Hurst & Strousse, 1938; Liefer, 1971; Lienberg, 1967; Thompson, 1942, 1950). It may be that the increase in anxiety experienced as a result of an amniocentesis was mitigated by an already high level of anxiety.

When the self concept data were analyzed to answer question one, it was found that only one component of the Total self concept score showed a significant change after the results of the amniocentesis were known. The change was in the area of Personal Self and it was the women who showed a significant increase ($p < .05$) in their feelings of personal worth and adequacy. This finding underscored the observation made by Blumberg et al. (1975) that the birth of a normal child seemed to reaffirm the personal sense of worth of parents. Although their observation was

made of parents who had previously aborted a defective fetus, it seemed equally accurate for those parents contemplating just such an abortion. Furthermore, the finding of a significant increase in women's self concepts after receiving the results of the amniocentesis reinforced Fletcher's (1972) observation that it was the women who tended to take the onus of genetic defect. In this study the amniocentesis women could be considered to have been freed of the onus of genetic defect by the negative amniocentesis results.

It should be kept in mind, however, that when the Total self concept scores were analyzed, no significant changes were found after receiving the negative amniocentesis results for either the women or men. This finding contrasted sharply with the studies that indicated a loss of self esteem as well as increased feelings of guilt and shame as a result of contemplating selective abortions of defective fetuses (Fletcher, 1972; Golbus et al., 1975; Duncan et al., 1976). One possible reason for this discrepancy of finding was that this study used self concept instrumentation to record change, while the other studies relied on verbal reports of change. It was also possible that the pervasive confidence in their babies' normality previously mentioned for these amniocentesis couples minimized or eliminated any thoughts about the selective abortion of a defective child and thus precluded any change in self concept. Finally, since 80% of the women and 72% of the men reported a firm decision to abort a defective fetus when interviewed during the waiting period, it is possible that the changes in self concept occurred prior to the initial interview when the first discussions of possible termination of an affected pregnancy occurred.

Question 2

In terms of anxiety, it was found that there were significant differences in women's and men's levels of anxiety both prior to ($p = .003$) and after ($p = .003$) receiving negative amniocentesis results. In both instances, it was the women who experienced the significantly higher levels of anxiety. This finding is congruent with the other studies that have reported the reactions of both husbands and wives to the amniocentesis procedure (Fletcher, 1972; Ashery, 1975; Beeson & Golbus, 1979; Silvestre & Fresco, 1980). It may be direct physical experience with the amniocentesis tap, the presence of the fetus within her body, and the possible abortion of that baby which accounts for the heightened level of anxiety in the women.

When the self concept data were examined in terms of this question, no significant differences were found in the self concepts of women and men prior to or after receiving the negative amniocentesis results. It was impossible to compare this finding of no differences to others since an analogous study did not exist in the amniocentesis literature. While a search of the pregnancy literature produced evidence that the self concepts of prospective mothers and fathers do change throughout pregnancy, there was no evidence that these changes were significant or different in magnitude for women and men. It can only be said that this question requires further empirical research.

Question 3

An examination of the women's anxiety data revealed no significant differences between the treatment and comparison group at either the fifth or sixth month of pregnancy. This finding has no corollary in the

amniocentesis literature since this is the first study to have included a group of pregnant women who did not opt for the amniocentesis procedure. It called into question the contention that amniocentesis is an anxiety producing experience (Fletcher, 1982; Golbus et al., 1974; Duncan et al., 1976; Robinson et al., 1975; Astbury & Walters, 1979; Beeson & Golbus, 1979; Silvestre & Fresco, 1980). It would seem that for the women at least whatever anxiety was produced by the amniocentesis experience was mitigated by an already high level of anxiety produced by pregnancy (Liefer, 1971; Bibring, 1959; Benedek, 1956). The anxiety results for the treatment and comparison group men provided an interesting contrast to the women's data in a number of ways. First, it was found that there were statistically significant anxiety differences between these two groups of men at both the fifth ($p < .05$) and sixth ($p < .05$) month of pregnancy. Secondly, it was found that it was the comparison group men, the men whose wives did not have an amniocentesis, who were recorded as having the higher levels of anxiety. It would seem that both having a wife who had an amniocentesis and receiving the negative amniocentesis results significantly reduced the amount of anxiety that the treatment group men experienced. Although it is impossible to verify this claim by comparing it with other similar data, there was evidence that suggested that receiving negative amniocentesis results reduced individuals' anxiety levels for the remainder of the pregnancy (Fletcher, 1972; Golbus et al., 1974; Robinson et al., 1975). It should be noted however that the finding of significant differences in anxiety level may not have been produced solely by A-State Anxiety event--receiving or not receiving amniocentesis results--but may have

been a result of the anxiety-proneness of the comparison group men. It was found that the comparison group men had statistically higher trait anxiety scores at both the fifth month ($p = .03$) and sixth month ($p = .003$) interviews.

When the women's self concept data were examined in relation to question one, it was found that there were no statistically significant differences in Total Self Concept scores between treatment and comparison group women. An examination of the various components of the Total Self Concept score did find that the treatment group had statistically higher ($p = .02$) Personal Self scores than the comparison group women. This meant that the amniocentesis women experienced greater feelings of personal worth and adequacy after receiving the negative test results. This significant difference in feelings of personal worth and adequacy may represent the women's relief at knowing that they would not be bearing or aborting a defective child. Literature exists which suggests that the contemplation of as well as the actual experience of selective abortion results in a loss of self esteem in the parents (Fletcher, 1972; Blumberg et al., 1975).

In terms of the men's self concept data, it was found that there were statistically significant differences on the fifth month Total Self Concept scores between the treatment and comparison group. It seemed that the amniocentesis men exhibited higher self concept scores ($p < .05$) during the waiting period than did the comparison group men. It may be that the amniocentesis men's involvement in the decision to have an amniocentesis as well as their physical presence during the amniocentesis tap increased their self concepts by allowing them more direct involvement

in their wives' pregnancies than was available for the comparison group men. There is research evidence that suggested that the more involved men became in their wives' pregnancies the less threatened they were by the experience and the more positive they became about their roles (Colman & Colman, 1973). This hypothesis was bolstered by the findings that the amniocentesis men had reported feeling significantly more positive about themselves ($p = .008$) and their behavior ($p = .05$) during this time period than had the comparison group men. Other plausible interpretations of this finding could also be made. For example, it is possible that the treatment group men's high self concepts resulted not from their participation in the amniocentesis experience but because these men were essentially more positive about themselves and their abilities in general than were the comparison group men. An examination of the component scores of the fifth month Total Self Concept score lended credence to this explanation since the treatment group men exhibited significantly higher scores than the comparison group men in a variety of areas. The treatment group men were, for example, found to have higher levels of self satisfaction ($p = .05$), personal worth and adequacy ($p = .008$), social worth and adequacy ($p = .003$), and satisfaction with their way of functioning or behaving ($p = .01$). One problem with this explanation was that the self concept advantage seen at the fifth month of pregnancy did not carry over to the sixth month. When the various components of the Total Self Concept score were again examined, it was found that not only had the treatment group's advantage dwindled to two areas, Personal and Social Self, but the levels of difference had dwindled as well to ($p = .05$) for the Personal Self and ($p = .0 8$) for the Social

Self. A third interpretation can also be made. It is possible that the high levels of self concept reported by the treatment group men in the variety of self areas just mentioned were attempts on their part to compensate for or to hide weak egos that resulted from their intense involvement in the amniocentesis experience. Fletcher (1972) and other researchers previously mentioned have made a telling case for the ambivalence and loss of self esteem individuals experience as a result of contemplating selective abortion of a defective fetus. The sixth month results, obtained after the treatment group men had received the negative amniocentesis results, underscored this contention because it was found that the treatment group men no longer scored significantly higher than the comparison group men in the Total Self Concept scores or in the Self Satisfaction or Behavior areas. In fact, in terms of the moral-ethical self, the amniocentesis men were found to have significantly lower self concepts than the comparison group men. It should be noted, however, that when the Net Conflict scores of the amniocentesis men were examined there was no indication that they had over-denied their negative attributes. In other words there was no evidence to suggest that the treatment group men had made a concentrated effort to eliminate the negative from their fifth month self concept scores.

It should be noted that all the interpretations posited for the finding of statistically significant differences on the fifth month Total Self Concept score are nothing more than conjectures. It is impossible to interpret this result with any degree of certainty since no analogous study exists which would allow for comparison. This state of conjecture

will remain until such time that the inclusion of pregnant couples who do not opt for an amniocentesis becomes a routine amniocentesis study design.

Chapter V

Summary, Conclusions, Implications, and Recommendations

The following chapter contains a brief summary of this investigation, as well as conclusions, implications, and recommendations for further research.

Summary

The purpose of this study was to provide non-retrospective information about the psychological consequences of amniocentesis for both the husband and the wife. This was done by gathering anxiety and self concept data before and after the results of the amniocentesis were known and then comparing it to similar data collected from pregnant couples who did not opt for the amniocentesis procedure.

Background

Since the first reports of the usage of midtrimester amniocentesis for prenatal diagnoses of chromosomal and metabolic errors in the late nineteen sixties (Jackson & Barter, 1967; Nadler, 1968), scores of reports, books, and articles have been written about the technical and ethical aspects of this procedure (Kenton, 1976). Surprisingly, little information was written about the impact of this procedure on the participating couple. As the committee of the National Academy of Sciences on Genetic Screening stated in 1975, "There has been too little attention paid so far to detailed examination of the thoughts, feelings, and attitudes of women who have undergone amniocentesis, or those of their husbands". Heeding the admonition of this committee, doctors, genetic counselors, social workers, and psychologists began to conduct investigations into the psychological realm of the amniocentesis experience (Ashery, 1975; Astbury & Walters, 1979; Beeson & Golbus, 1979; Duncan et

al., 1976; Griffin et al., 1976-1977; Godmilow et al., 1978; Murray, 1976; Robinson et al., 1975; Silvestre & Fresco, 1980; Weiss, 1976). From their writings four points of agreement were distilled. They were: (a) the time just prior to receiving the results of the amniocentesis was the period of greatest anxiety for the couples; (b) the receipt of negative test results decreased, perhaps ceased, anxiety for the remainder of the pregnancy; (c) the receipt of positive test results increased anxiety until a decision was made about the pregnancy and once made the anxiety was replaced by feelings of guilt, grief, self-doubt, and mourning; and (d) the contemplation of or the necessity for a selective abortion adversely affected the prospective parents' self concepts. While this information illustrated the psychological and emotional components of the amniocentesis experience, its utility for medical personnel, genetic counselors and pregnant couples was limited by either the use of retrospective data, indirect report of others' feelings and experiences, lack of instrumentation, or lack of a control group. It was clear that it was time for a prospective study of the feelings and experiences of amniocentesis couples to be undertaken which would use both reliable and valid instrumentation and a control group. These points were kept in mind when this study was designed to answer the following research questions:

1. Do individuals' levels of anxiety and self concept change after receiving the results of amniocenteses?

2. Are there differences in women's and men's levels of anxiety and self concept before or after receiving the results of amniocenteses?

3. Are the levels of anxiety and self concept of couples who have amniocenteses different from the levels of anxiety and self concept of couples who are pregnant but who do not have amniocenteses?

Methodology

There were two sources of data in this study. The first source was the treatment group which was composed of 25 women and their spouses who had an amniocentesis performed in their second trimester of pregnancy ($\bar{X}$ = 17.1 gestational weeks). The second source of data was the comparison group which was composed of 25 women and their spouses who were pregnant but who did not have an amniocentesis performed. These two groups were comparable in terms of socioeconomic status, educational achievement, racial composition, and religious affiliation. Both groups were interviewed in their homes during the 19th and 24th week of pregnancy. These two interviews were arranged to occur 7-10 days after the amniocentesis tap and then approximately 2 weeks after the results of the tap were known. The time arrangement of these two interviews were selected so that any potential complication such as spontaneous abortion, fetal injury, uterine infection, positive test results, or selective abortion could be avoided. The husbands were interviewed by a male research assistant and the women were interviewed by the female researcher. At both interviews, the subjects were asked to respond to a series of questions about their particular pregnancy experiences and to take the IPAT Anxiety Scale Questionaire and the Tennessee Self Concept Scale.

Analysis and Results

Data obtained from the anxiety and self concept instrumenta administered during the fifth and sixth month home interviews were used in the statistical analyses that were performed to answer this study's three research questions. To answer the first research question, correlated t-Tests were performed on the treatment group's fifth and sixth month anxiety and self concept data. It was found that there were no statistically significant changes in either the women's or men's level of anxiety and self concept after receiving the negative amniocentesis results. The second research question was answered after a series of oneway analyses of variance were performed on the treatment group's anxiety and self concept data. It was found that the treatment group women had statistically higher levels of anxiety both before ($p < .01$) and after ($p < .01$) the results of the amniocentesis were known. In terms of self concept, the analyses revealed no evidence of statistical differences between the amniocentesis women and men. The third research question was answered when the results of the oneway analyses of variance performed on the treatment and comparison group data revealed that there were no statistically significant differences between the treatment and comparison group women in levels of anxiety or self concept but statistically significant differences for the men. The men's data revealed that the treatment group had significantly lower levels of anxiety before ($p < .05$) and after ($p < .05$) receiving the amniocentesis results and significantly higher self concepts ($p < .05$) than the comparison group men on the fifth month scores.

Discussion of the Results

The results of this study bring into question the contentions of previous researchers that: (a) the period prior to the receipt of the amniocentesis results is the time of greatest anxiety; (b) the receipt of negative amniocentesis results reduces, perhaps eliminates, anxiety for the remainder of the pregnancy; and (c) contemplating a selective abortion of a desired pregnancy adversely affects the self concepts of amniocentesis couples. Based on this study's findings, it would seem that the degree of anxiety experienced by the amniocentesis couple during the waiting period is relative to the sex of the individual and is, at worst, no greater than that associated with being pregnant. It would also seem that in the early weeks after the diagnosis is known, negative amniocentesis results do little to reduce the couple's feelings of anxiety. Finally, one must question whether amniocentesis couples consider the likelihood of a positive diagnosis or, if they do, whether this consideration adversely affects the self concept, since there was no evidence to suggest a decrease in self concept before or after receiving the results of the test.

There are numerous explanations for the discrepancies found in the amniocentesis research but they may be grouped into one of the following three categories--psychological orientation of the couples, demographic variables, and study design differences. To explain the findings of no change and no differences in anxiety and self concept, the psychological orientation category would contain explanations such as,

1. The amniocentesis situation was perceived not as a crisis situation but as part of good prenatal care by the participating couples.

2. The risk rate for having a defective child was perceived or interpreted as being low.

3. The couples were aware that negative test results did not guarantee a birth of a healthy child.

4. Any increase or decrease in anxiety resulting from the amniocentesis experience may have been overshadowed by the anxiety that attended the pregnancy.

The demographic variable category would contain explanations such as the following:

1. The majority of the pregnancies were planned and diagnosed early which allowed ample time for the couples to react to the idea of having an amniocentesis and/or aborting a defective fetus.

2. The husbands were physically involved in the amniocentesis process. Their involvement, concern, and supportiveness could alleviate anxiety and buoy the self concept of the women.

3. The couples had made a firm decision to abort the pregnancy upon receipt of positive test results. This plan of action could have alleviated any anxiety or loss of self esteem that might have been engendered by the contemplation of a selective abortion.

4. Eighty-eight percent of the couples reported good health and genetic histories which could alleviate their concern about bearing a handicapped child.

5. A number of women had prior experience with amniocentesis which could have relieved the anxiety about the procedure. Sixteen percent of the women had previously successful amniocenteses and 44% of the couples reported knowing someone who had had a successful amniocentesis experience.

6. None of the couples had received a positive amniocentesis result.

Finally, to explain the findings of no change or differences in anxiety and self concept from the study design perspective, the following explanations could be given:

1. A prospective rather than retrospective study design was used. This design allowed the immediate impressions and experiences of the amniocentesis couples to be more accurately remembered and recorded.

2. The data collected came from both personal report and instrumentation. The use of both sources of data provides a more complete picture of the amniocentesis experience.

3. Different anxiety instruments were used.

4. No pre-amniocentesis test measures were taken so an important index for the measurement of emotional change was missing.

5. This was the first study to include a comparison group composed of pregnant couples who did not have an amniocentesis performed.

Conclusions and Implications

This dissertation study was designed and conducted in the hope that the information obtained would (a) contribute to the growing body of knowledge about the psychological impact of amniocentesis; (b) suggest ways of improving the genetic counseling couples receive prior to the amniocentesis; and, (c) provide past and future recipients of amniocentesis with a better understanding of the impact of this medical procedure. After reviewing the data obtained from the interview protocols and the statistical analyses, it would seem that the amniocentesis knowledge base was increased by this study's:

1. inclusion of a comparison group which provided a new perspective on the nature and magnitude of the anxiety experienced as a result of the performance of an amniocentesis;

2. support of previous research findings that indicated that women were more anxious than their husbands throughout the amniocentesis experience;

3. rejection of previous research findings that indicated that the receipt of negative research findings reduces couples' anxiety for the remainder of the pregnancy;

4. use of a valid self concept instrument to quantify the hypothesized changes that occur as a result of having an amniocentesis.

The research and interview data also suggested ways in which genetic counselors could improve their services to the amniocentesis couples. They were:

1. Counselors and doctors who recommend the use of amniocentesis for indications of "maternal anxiety" may need to reconsider this recommendation in light of the finding that the receipt of negative results produced no significant changes in women's anxiety levels;

2. Couples should be informed that there are apparent sex differences in the degree of anxiety experienced during the waiting period. This way couples will be less likely to misconstrue their partner's behavior as indicative of hysteria, guilt, resentment, or unconcern. They should also be taught ways to communicate their concerns to their spouses as well as be given techniques for coping with the anxiety experienced;

3. Husbands should be informed that negative test results may do little in reducing the amount of anxiety their wives experience and that any emotional changes they observe may be a result of being pregnant;

4. The amniocentesis couples that were interviewed expressed a need for speaking with other couples who have had or are contemplating having an amniocentesis. Genetic counselors may wish to consider the use of group counseling sessions at least when informing couples of the physical and psychological effects of the procedure;

5. The amniocentesis women who were interviewed mentioned the psychological importance of their husbands' presence during the actual amniocentesis tap. Amniocentesis clinics that ban husbands from the procedure room may need to reconsider their policies.

Finally, as a result of this study's design, execution, and results, data were provided that provided past and future recipients of amniocentesis with a more complete understanding of the total impact of the test.

Recommendations for Further Research

During the course of this investigation on the psychological impact of amniocentesis, a number of areas requiring further research became apparent. Research is needed to determine:

1. if the amniocentesis test really has little or no impact on the women's anxiety levels;

2. what impact varying statistical rates for having a handicapped child have on couples' levels of anxiety and self concept;

3. the types of variables that influence a pregnant couple's confidence in their fetus' normality;

4. the long term effect of the receipt of negative amniocentesis results on parental attitudes and behaviors;

5. the history and dynamics of the amniocentesis decision-making process.

Appendix A

Informational Pamphlet

UNIVERSITY OF MARYLAND
COLLEGE OF EDUCATION
COLLEGE PARK 20742

INSTITUTE FOR CHILD STUDY

Project Title: The Effect of Second Trimester Prenatal Experiences

Project Director: Maureen Mulroy Thomas

You are invited to participate in a research study being conducted by this doctoral candidate in the Department of Human Development at the University of Maryland. The project is concerned with the experiences of couples during the second trimester of pregnancy who are (1) over thirty years of age, and (2) having different types of prenatal experiences (amniocentesis, sonograms, routine prenatal check-ups).

Participants in the study will be visited by the researcher and an assistant during the fourth and sixth month of pregnancy in their own homes. During this time, participants will be interviewed individually and as a couple about their pregnancy experiences.

Please note that:

(1) Your physician has given permission for this informational pamphlet to be given to you;

(2) All information obtained during the interviews will be kept confidential;

(3) Only you and the research staff involved with this project will have access to any information that you will give;

(4) Any reports to be derived from the data collected will <u>always</u> be written in terms of summaries for the group participating. In other words, no one family or individual will be mentioned or used as a case study;

(5) There is no financial reimbursement for participation in this investigation. All interested participants will, however, receive a copy of the study's results.

If you are interested in participating in this study or would like further information about this study, please contact the project director at one of the following telephone numbers: (301) 454-2034 (days), (301) 927-0528 (evenings).

Appendix B

Telephone Contact Script

Script for Telephone Contact

As the pamphlet indicated, I am interested in studying the experiences of pregnant couples who are thirty years of age and older and are having different types of pregnancy experiences. To learn about these experiences, home interviews will be conducted at two time periods by myself and an assistant. Those time periods will be during the fourth and sixth months of pregnancy. Upon your written consent you and your spouse will be interviewed at home individually and as a couple. We will be asking questions to get background information on yourself and spouse and to gain information on your current pregnancy experiences and your reactions to them. You will also be asked to fill out two short questionnaires that focus on current feelings about yourself and others.

Now I would like to tell you about the issues this study is focusing on. In recent years the field of obstetrics has witnessed an increase in the use of technological apparatus and tests to monitor the developing fetus. Those technologies I am speaking of include the use of ultrasonography (sonograms) and the performance of a diagnostic test called amniocentesis. This study is interested in whether the prenatal experiences of women and their spouses differ as a result of their usage of such procedures and in finding out how these couples feel about having or not having these procedures performed. The study has been designed so it will include couples in all categories, such as couples who have had no prenatal diagnostic procedures performed, sonograms only, and amniocentesis.

I need to let you know that participants in this study are volunteers. There is no payment. However I plan to share the results of the study with all the couples that take part. I have found that this is a way that families really liked to be thanked.

How does this sound to you? Can I answer any questions for you? You can see from what I've told you that it is very important that your spouse also be interested in participating. Would you like to check with him or do you feel certain that he wants to participate in the study? If you would like to talk it over with him first, why don't you give me a call and at that time I'll ask you for some information. If you're fairly certain he wants to participate I can go ahead and ask you some questions.

FILL OUT THE TELEPHONE CONTACT FORM

I want to thank you for calling, and we will be seeing you and your husband on (appointed day) at (appointed time).

Appendix C

Appointment Schedule

Home Visit Appointment

Code # _____ _____ _____ _____ _____

Home Visit #1 Date: _____ Time: _____

Home Visit #2 Date: _____ Time: _____

Name: _____ Age: _____

Spouse's Name: _____ Age: _____

Weeks/Months Pregnant: _____ LMP _____

Amniocentesis: _____ Yes _____ No Dr. _____

Sonogram: _____ Yes _____ No Dr. _____

Prenatal Care: _____ Yes _____ No Dr. _____

Referral: _____ Pamphlet Where obtained: _____

_____ Notice Where heard: _____

_____ Other Explain: _____

Address: _____

_____

Telephone: _____ (Home)

_____ (Work)

Directions:

Appendix D

Informed Consent Form

Declaration of Informed Consent

I give my informed consent to participate in this study of the concerns of husbands and wives during the second trimester of pregnancy. I consent to publication of study results so long as the information is anonymous and disguised so that no identification can be made. I further understand that although a record will be kept of my having participated in this study, all information collected from my participation will be identified by number only.

(1) I have been informed that my participation in this study will involve two home interviews to be conducted during the fourth and sixth month of pregnancy.

(2) I have been informed that the general purpose of this experiment is to study couples' reactions toward pregnancy and the obstetrical practices attending it.

(3) I have been informed that there are no known expected discomforts or risks involved in our participation in this experiment.

(4) I have been informed that there is no financial reimbursement for participation in the study.

(5) I have been informed that the investigator or her assistant will gladly answer any questions regarding the interviews when the second home interview is completed.

(6) I have been informed that I am free to withdraw from the research study at any time without penalty of any kind.

Concerns about any aspect of this study may be referred to the Chairman of the researcher's doctoral committee:

Dr. Laura L. Dittmann
University of Maryland
Institute for Child Study
College Park, Maryland 20742
(301) 454-2034

_____ (Experimenter)

_____ (Participant)

_____ (Date)

_____ (Participant)

Appendix E

Demographic Information

Subject # ___ ___ ___ ___ ___

E. Demographic Information--Four Month Interview

1. Woman's Age: _____ Man's Age: _____

2. Woman's Race:

___ Caucasian
___ Black
___ Oriental
___ Spanish Surname American
___ Other: _____

Man's Race:

___ Caucasian
___ Black
___ Oriental
___ Spanish Surname American
___ Other: _____

3. U.S. Citizen:

___ Yes
___ No. Name of Country: _____

U.S. Citizen:

___ Yes
___ No. Name of Country: _____

4. Religion:

___ Protestant
___ Catholic
___ Jewish
___ None
___ Other: _____

Religion:

___ Protestant
___ Catholic
___ Jewish
___ None
___ Other: _____

5. Education (Woman): 1 2 3 4 5 6 7 8 9 10 11 12 Elementary & High School

1 2 3 4 5 6 7 8 9 10 11 College

_____ Other Schooling/Training

College Degree: ___ Bachelor ___ Masters ___ Doctorate

6. Education (Man): 1 2 3 4 5 6 7 8 9 10 11 12 Elementary & High School

1 2 3 4 5 6 7 8 9 10 11 College

_____ Other Schooling/Training

College Degree: ___ Bachelor ___ Masters ___ Doctorate

7. Employment: Woman: ___ Yes ___ No ___ Other: _____

Occupation: _____

Salary: _____

Man: ___ Yes ___ No ___ Other: _____

Occupation: _____

Salary: _____

8. Salary Range (Combined Incomes):

_____ $ 0.00 - $ 5,000

_____ 6,000 - 10,000

_____ 11,000 - 15,000

_____ $16,000 - $20,000

_____ 21,000 - 25,000

_____ 26,000 - 30,000

_____ $31,000 - $35,000

_____ 36,000 +

Appendix F

Knowledge and Willingness to Use Prenatal Diagnostic Procedures

Subject # ___ ___ ___ ___ ___

F. Knowledge of and Willingness to Use Prenatal Diagnostic Procedures

1. The following are two prenatal diagnostic procedures that are currently gaining in popularity and usage in the field of obstetrics. Have you heard of any of them? (Place a check mark next to those she/he has heard of.)

*25 **25 Ultrasonic Scans (Sonograms)

25 24 Amniocentesis

0 0 Never heard of any of them. (Describe the procedures, ask them again. If no go to question #3)

2. How did you first learn about these procedures? (Place a check next to each source. May check more than one.)

Sonogram		Amniocentesis		Source
*8	2**	*3	0**	Her obstetrician or family doctor
0	0	0	0	Pediatrician
1	4	2	4	Teacher
14	14	18	12	I read about it.
7	6	9	6	I heard about it on TV.
0	10	1	9	My spouse told me about it.
13	6	11	6	A friend told me about it.
5	2	3	5	Other. Specify (sonogram): _____
				Specify (amnio): _____

* Column 1 contains a frequency count of the non-amniocentesis women's responses.
** Column 2 contains a frequency count of the non-amniocentesis men's responses.

3. How would you classify your attitude toward these tests? (Describe the procedures if unfamiliar)

Sonograms	Amniocenteses	Attitudes
*9 6**	*3 1**	I'm strongly in favor of it. I would want it to become part of my/my wife's routine prenatal care.
10 7	11 10	I'm in favor of it however I/my wife/ would/should use it only if it was necessary
2 10	4 7	Neutral. I/my wife would/could have it if the doctor thought it necessary but I/she wouldn't/shouldn't seek it out.
4 2	6 6	I'm not in favor of it. The doctor would have to give good reasons for its necessity before I/my wife would/could use it.
0 0	1 1	I strongly disapprove of it. I/my wife would/could not use it even if encouraged by the doctor.

4. What do you think your spouse's first reaction to having the tests would be?

Sonograms	Amniocenteses	Reactions
*14 6**	* 9 0**	Strongly in favor.
6 8	8 13	Have hesitations.
0 1	0 1	Strongly disapprove.
2 0	0 0	Have no opinion.
1 4	1 1	Feel it was my/her decision.
2 5	3 7	Feel that the doctor should make the decision.
0 1	2 2	Other. Specify (sonogram): _____
		Other. Specify (amnio): _____

5. How would you classify your/your wife's doctor's attitude toward these tests?

Sonogram	Amniocentesis	Attitude
*15 13**	*4 3**	In favor and encouraging.
6 8	6 15	Neutral.
0 2	6 2	Not in favor or discouraging.
0 0	0 0	Never heard of it.

6. What would be your greatest concerns about these tests? (Can check more than one response)

Sonogram	Amniocentesis	Concerns
*10 6**	*9 4**	Unknown aspects of the test.
3 5	8 8	Afraid the tests would be painful to myself/my wife or fetus.
11 8	21 17	Possible injury to the fetus.
1 3	15 11	Possible miscarriage.
3 3	6 10	Possible injury to myself/my wife.
4 4	21 5	Results of the test or exam.
0 6	12 10	Having to decide whether or not to end the pregnancy
8 10	0 3	Other. Specify (sonogram): _____
		Other. Specify (amnio): _____

7. If you/your wife became pregnant again would you have these tests performed?

Sonogram	Amniocentesis	Response
*16 13**	*14 8**	Yes
4 3	5 6	No
5 9	6 11	Not sure

Appendix G

Amniocentesis Experience

G. Amniocentesis Group Only

9. How many times have you had an amniocentesis for prenatal diagnosis? _____

10. What was the name and location of the clinic where the amniocentesis was performed previously?

Name: _____ Location: _____

11. Have you and/or your spouse had a child with any physical, medical or mental problems?

3 Yes Type of condition: (2) Down's Syndrome; (1) Hydrocephalus.

22 No

0 Unknown

12. Is this child now living?

2 Yes

1 No

0 Unknown

22 Not applicable

13. Where does this child now live?

2 The child is currently living at home with us.

0 The child is currently living with relatives.

0 The child is currently living at a special school.

0 The child is currently living at a medical facility.

___ Other: _____

1 The child is not living.

22 The question is not applicable.

---

* This protocol was designed after the one Ashery (1975) used in her dissertation. Permission was granted by the author.

14. Why did you come for amniocentesis? (Mark as many as are applicable)

21 Concern about parental age for childbearing.

3 We had a previous child with a genetic problem.

1 We have a family history of genetic problems.

10 We are anxious because of what we have read about genetics and the risk of giving birth to a severely handicapped child.

2 We were anxious because friends of ours had a handicapped child.

0 One or both of us is a carrier of a genetic disease.

Who? ____ Woman ____ Man ____ Both Name of disease:

_____

0 One or both of us has been exposed to a mutagenic agent.

Who? ____ Woman ____ Man ____ Both Name of agent:

_____

15. Has an amniocentesis ever been performed for reasons other than prenatal diagnosis?

0 Yes Why? _____

25 No

0 Unknown

16. How many therapeutic abortions have you had as a result of a positive diagnosis?

0

_____

17. How did you first learn about amniocentesis and the prenatal diagnosis of genetic defects?

5 My obstetrician or family physician

1 Medical geneticist

0 Pediatrician

(Question 17 continued)

2 Teacher

14 I read about it.

1 My spouse told me about it.

8 A friend told me about it.

3 I heard about it on TV.

3 Other: _____

18. Who actually referred you to the amniocentesis clinic?

22 Obstetrician

0 Pediatrician

0 Genetic Counselor

1 A friend or relative.

0 I referred myself.

2 Other: _____

19. When did you first find out that it might be advisable for you to have an amniocentesis?

20 Before I became pregnant

1 First or second month of pregnancy

4 During the third of fourth month of pregnancy

0 Fifth month of pregnancy

20. When did you first go to your physician for pregnancy?

23 First or second month of pregnancy

2 Third month

0 Fourth month

0 Fifth month

21. Was this pregnancy planned?

18 Yes. I/We wanted to get pregnant.

7 No. I/We did not want to get pregnant.

0 Undecided. I/We did not care one way or the other.

22. How did you feel when you first found out that you/your wife were/was pregnant?

11 Not at all anxious

4 Normal anxieties of pregnancy

2 Anxious because of a previous birth in which the child had a genetic problem

0 Anxious because of a definite recurrence risk carried in my family.

7 Anxious because of my age

1 Anxious because I did not want additional children

23. How do you feel about the pregnancy now?

6 I am not anxious at all.

10 I am somewhat anxious.

4 I am moderately anxious.

5 I am very anxious.

24. How would you classify your local doctor's attitude toward the test?

21 In favor and encouraging

4 Neutral

0 Not in favor or discouraging

0 Never heard of test

25. Did your local doctor explain what the test would be like and what the test would show?

13 He/She did explain the procedure.

12 He/She did not explain the procedure.

11 He/She did explain what the test would show.

14 He/She did not explain what the test would show.

26. Before the withdrawal of amniotic fluid, what were your greatest concerns about the test?

2 Unknown aspects of the test

11 Afraid the test would be painful

19 Possible injury to the fetus

3 Possible injury to myself

10 Having to decide whether or not to artificially end the pregnancy

9 Results of the test

1 I had no concerns

0 Other: _____

27. When you first heard that you/your spouse was a candidate for amniocentesis what was your reaction?

12 I was strongly in favor of it.

10 I had hesitations about it.

1 I had no opinion about it.

1 I felt it was my/my spouse's decision.

0 I felt the decision should be left up to the doctor.

1 Other: _____

28. What are your greatest concerns about the test right now?

5 Possible injury to the fetus as a result of the procedure

5 Possible miscarriage

11 Having to decide about ending the pregnancy

17 The test results

3 No concerns

1 Other: _____

29. When you first came to have the amniotic fluid withdrawn, did you plan to end the pregnancy if the test showed that you/your wife were/was carrying an abnormal fetus?

21 Yes

2 No

2 Undecided

30. At this point in time what are your feelings about ending the pregnancy if the child is shown to be abnormal?

20 The pregnancy will be terminated.

1 The pregnancy will go full term.

4 I don't know.

31. How confident are you that your baby is normal?

16 I know that the baby is normal.

9 I am not sure if the baby is normal.

0 I know there is something wrong with the baby.

0 I have no thoughts on the matter.

32. Did you/your wife become pregnant because you knew this test was available?

3 Yes

22 No

33. Children from this marriage (not including this pregnancy):

Age: _____ Sex: _____

_____ _____

_____ _____

_____ _____

_____ _____

34. Children from previous marriage:

Age: _____ Sex: _____

_____ _____

_____ _____

_____ _____

_____ _____

Appendix H

IPAT Anxiety Scale Questionnaire

B

21. I use up more energy than most people in getting things done because I get tense and nervous.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

22. I make a point of not being absent-minded or forgetful of details.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

23. No matter how difficult and unpleasant the snags and stumbling blocks are, I always stick to my original plan or intentions. [a] yes, [b] in between, [c] no. ☐a ☐b ☐c

24. I get over-excited and "rattled" in upsetting situations.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

25. I sometimes have vivid, true-to-life dreams that disturb my sleep.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

26. I always have enough energy to deal with problems when I'm faced with them.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

27. I have a habit of counting things, such as steps, or bricks in a wall, for no particular purpose.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

28. Most people are a little odd mentally, but they don't like to admit it.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

29. If I make an embarrassing social mistake I can soon forget it.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

30. I feel grouchy and just don't want to see people.
[a] almost never, [b] sometimes, [c] very often. ☐a ☐b ☐c

31. I can almost feel tears come to my eyes when things go wrong.
[a] never, [b] very rarely, [c] sometimes. ☐a ☐b ☐c

32. Even in the middle of social groups I sometimes feel lonely and worthless.
[a] true, [b] in between, [c] false. ☐a ☐b ☐c

33. I wake in the night and have trouble sleeping again because I'm worrying about things.
[a] often, [b] sometimes, [c] almost never. ☐a ☐b ☐c

34. My spirits usually stay high no matter how many troubles I seem to have.
[a] true, [b] in between, [c] false. ☐a ☐b ☐c

35. I sometimes get feelings of guilt or regret over unimportant, small matters.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

36. My nerves get on edge so that certain sounds, such as a screechy hinge, are unbearable and give me the shivers. [a] often, [b] sometimes, [c] never. ☐a ☐b ☐c

37. Even if something upsets me a lot, I usually calm down again quite quickly.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

38. I seem to tremble or perspire when I think of a difficult task ahead.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

39. I usually fall asleep quickly, in just a few minutes, when I go to bed.
[a] yes, [b] in between, [c] no. ☐a ☐b ☐c

40. I sometimes get tense and confused as I think over things I'm concerned about.
[a] true, [b] uncertain, [c] false. ☐a ☐b ☐c

STOP HERE. BE SURE YOU HAVE ANSWERED EVERY QUESTION.

B Score ☐

1. My interests, in people and ways to have fun, seem to change quite fast.
   [a] true, [b] in between, [c] false.

2. Even if people think poorly of me I still go on feeling O.K. about myself.
   [a] true, [b] in between, [c] false.

3. I like to be sure that what I'm saying is right, before I join in on an argument.
   [a] yes, [b] in between, [c] no.

4. I am inclined to let my feelings of jealousy influence my actions.
   [a] sometimes, [b] seldom, [c] never.

5. If I had my life to live over again I'd:
   [a] plan very differently, [b] in between, [c] want it the same.

6. I admire my parents in all important matters.
   [a] yes, [b] in between, [c] no.

7. It's hard for me to take "no" for an answer, even when I know what I'm asking is impossible.
   [a] true, [b] in between, [c] false.

8. I wonder about the honesty of people who are more friendly than I'd expect them to be.
   [a] true, [b] in between, [c] false.

9. In getting the children to obey them, my parents (or guardians) were:
   [a] usually very reasonable, [b] in between, [c] often unreasonable.

10. I need my friends more than they seem to need me.
    [a] rarely, [b] sometimes, [c] often.

11. I feel sure I could "pull myself together" to deal with an emergency if I had to.
    [a] true, [b] in between, [c] false.

12. As a child I was afraid of the dark.
    [a] often, [b] sometimes, [c] never.

13. People sometimes tell me that when I get excited, it shows in my voice and manner too obviously. [a] yes, [b] uncertain, [c] no.

14. If people take advantage of my friendliness I:
    [a] soon forget and forgive, [b] in between, [c] resent it and hold it against them.

15. I get upset when people criticize me even if they really mean to help me.
    [a] often, [b] sometimes, [c] never.

16. Often I get angry with people too quickly.
    [a] true, [b] in between, [c] false.

17. I feel restless as if I want something but don't know what.
    [a] hardly ever, [b] sometimes, [c] often.

18. I sometimes doubt whether people I'm talking to are really interested in what I'm saying.
    [a] true, [b] uncertain, [c] false.

19. I'm hardly ever bothered by such things as tense muscles, upset stomach, or pains in my chest.
    [a] true, [b] in between, [c] false.

20. In discussions with some people, I get so annoyed I can hardly trust myself to speak.
    [a] sometimes, [b] rarely, [c] never.

CONTINUE ON NEXT PAGE.

A Score

Appendix I

Tennessee Self Concept Scale

INSTRUCTIONS: Fill in your name and other information on the separate answer sheet.

The statements in this inventory are to help you describe yourself as you see yourself. Please answer them as if you were describing yourself to yourself. Read each item carefully; then select one of the five responses below and fill in the answer space on the separate answer sheet.

Don't skip any items. Answer each one. Use a soft lead pencil. Pens won't work. If you change an answer, you must erase the old answer completely and enter the new one.

RESPONSES	Completely False	Mostly False	Partly False and Partly True	Mostly True	Completely True
	C	M		M	C
	F	F	PF-PT	T	T
	1	2	3	4	5

TENNESSEE SELF CONCEPT SCALE

1. I have a healthy body 1
2. I am an attractive person 2
3. I consider myself a sloppy person 3
4. I am a decent sort of person 4
5. I am an honest person 5
6. I am a bad person 6
7. I am a cheerful person 7
8. I am a calm and easy going person 8
9. I am a nobody 9
10. I have a family that would always help me in any kind of trouble 10
11. I am a member of a happy family 11
12. My friends have no confidence in me 12
13. I am a friendly person 13
14. I am popular with men 14
15. I am not interested in what other people do 15
16. I do not always tell the truth 16
17. I get angry sometimes 17
18. I like to look nice and neat all the time 18
19. I am full of aches and pains 19
20. I am a sick person 20
21. I am a religious person 21
22. I am a moral failure 22
23. I am a morally weak person 23
24. I have a lot of self-control 24
25. I am a hateful person 25
26. I am losing my mind 26
27. I am an important person to my friends and family 27
28. I am not loved by my family 28
29. I feel that my family doesn't trust me 29
30. I am popular with women 30
31. I am mad at the whole world 31
32. I am hard to be friendly with 32
33. Once in a while I think of things too bad to talk about 33
34. Sometimes when I am not feeling well, I am cross 34
35. I am neither too fat nor too thin 35
36. I like my looks just the way they are 36
37. I would like to change some parts of my body 37
38. I am satisfied with my moral behavior 38
39. I am satisfied with my relationship to God 39
40. I ought to go to church more 40

41. I am satisfied to be just what I am 41
42. I am just as nice as I should be 42
43. I despise myself 43
44. I am satisfied with my family relationships 44
45. I understand my family as well as I should 45
46. I should trust my family more 46
47. I am as sociable as I want to be 47
48. I try to please others, but I don't overdo it 48
49. I am no good at all from a social standpoint 49
50. I do not like everyone I know 50
51. Once in a while, I laugh at a dirty joke 51
52. I am neither too tall nor too short 52
53. I don't feel as well as I should 53
54. I should have more sex appeal 54
55. I am as religious as I want to be 55
56. I wish I could be more trustworthy 56
57. I shouldn't tell so many lies 57
58. I am as smart as I want to be 58
59. I am not the person I would like to be 59
60. I wish I didn't give up as easily as I do 60
61. I treat my parents as well as I should (Use past tense if parents are not living) 61
62. I am too sensitive to things my family say 62
63. I should love my family more 63
64. I am satisfied with the way I treat other people 64
65. I should be more polite to others 65
66. I ought to get along better with other people 66
67. I gossip a little at times 67
68. At times I feel like swearing 68
69. I take good care of myself physically 69
70. I try to be careful about my appearance 70
71. I often act like I am "all thumbs" 71
72. I am true to my religion in my everyday life 72
73. I try to change when I know I'm doing things that are wrong 73
74. I sometimes do very bad things 74
75. I can always take care of myself in any situation 75
76. I take the blame for things without getting mad 76
77. I do things without thinking about them first 77
78. I try to play fair with my friends and family 78
79. I take a real interest in my family 79
80. I give in to my parents.(Use past tense if parents are not living) 80
81. I try to understand the other fellow's point of view 81
82. I get along well with other people 82
83. I do not forgive others easily 83
84. I would rather win than lose in a game 84
85. I feel good most of the time 85
86. I do poorly in sports and games 86
87. I am a poor sleeper 87
88. I do what is right most of the time 88
89. I sometimes use unfair means to get ahead 89
90. I have trouble doing the things that are right 90
91. I solve my problems quite easily 91
92. I change my mind a lot 92
93. I try to run away from my problems 93
94. I do my share of work at home 94
95. I quarrel with my family 95
96. I do not act like my family thinks I should 96
97. I see good points in all the people I meet 97
98. I do not feel at ease with other people 98
99. I find it hard to talk with strangers 99
100. Once in a while I put off until tomorrow what I ought to do today 100

Appendix J

Frequency Distributions of the Ages of Treatment and Comparison Group Women and Men

Appendix J

Frequency Distributions of the Ages of Treatment and Comparison Group Women and Men

Frequency Distribution of Reported Age For Treatment and Comparison Group Women

Reported Age	Treatment Group Women Absolute Frequency	Treatment Group Women Relative Frequency(%)	Comparison Group Women Absolute Frequency	Comparison Group Women Relative Frequency(%)
30	1	4.0	6	24.0
31	1	4.0	6	24.0
32	0	0.0	6	24.0
33	0	0.0	6	24.0
34	3	12.0	0	0.0
35	4	16.0	1	4.0
36	6	24.0	0	0.0
37	2	8.0	0	0.0
38	4	16.0	0	0.0
39	2	8.0	0	0.0
40	2	8.0	0	0.0
Total	25	100.0%	25	100.0%

Frequency Distribution of Reported Age For Treatment and Comparison Group Men

Reported Age	Treatment Group Men Absolute Frequency	Treatment Group Men Relative Frequency(%)	Comparison Group Men Absolute Frequency	Comparison Group Men Relative Frequency(%)
27	0	0.0	2	8.0
28	0	0.0	1	4.0
29	0	0.0	1	4.0
30	0	0.0	3	12.0
31	1	4.0	2	8.0
32	2	8.0	6	24.0
33	5	20.0	4	16.0
34	1	4.0	2	8.0
35	3	12.0	1	4.0
36	1	4.0	1	4.0
37	1	4.0	2	8.0
38	2	8.0	0	0.0
39	2	8.0	0	0.0
40	2	8.0	0	0.0
42	1	4.0	0	0.0
43	1	4.0	0	0.0
46	1	4.0	0	0.0
48	1	4.0	0	0.0
53	1	4.0	0	0.0
Total	25	100.0%	25	100.0%

Appendix K

Frequency Distributions of the Occupations of

Treatment Group Women and Men

Reported Full Time Occupation of Treatment Group Women and Men

Occupation	Treatment Group Women		Treatment Group Men	
	Absolute Frequency	Relative Frequency (%)	Absolute Frequency	Relative Frequency (%)
Educator:				
College	1	4.0	1	4.0
High School	3	12.0	4	16.0
Preschool	1	4.0	0	0.0
Special Ed	3	12.0	0	0.0
Counselor:	0	0.0	1	4.0
Government:				
Administration	0	0.0	2	8.0
Employee	2	8.0	2	8.0
Business:				
Self-Employed	1	4.0	3	12.0
Industry:				
Employee	3	12.0	6	24.0
Administration	2	8.0	1	4.0
Lawyer	1	4.0	1	4.0
Researcher:				
Business	0	0.0	1	4.0
Government	0	0.0	1	4.0
Architect:	0	0.0	2	8.0
At Home:	8	32.0	0	0.0
Total	25	100.0%	25	100.0%

Appendix L

Frequency Distributions of the Occupations of

Comparison Group Women and Men

Reported Full Time Occupation of Comparison Group Women and Men

Occupation	Comparison Group Women		Comparison Group Men	
	Absolute Frequency	Relative Frequency(%)	Absolute Frequency	Relative Frequency(%)
Educator:				
Elementary	2	8.0	0	0.0
Special Ed	2	8.0	0	0.0
Counselor:	1	4.0	1	4.0
Law Enforcement:	1	4.0	2	8.0
Government:				
Lawyer	0	0.0	3	12.0
Administrator	2	8.0	3	12.0
Employee	0	0.0	1	4.0
Health Field:	1	4.0	1	4.0
Business:				
Self-Employed	2	8.0	1	4.0
Employee	3	12.0	2	8.0
Lawyer	0	0.0	4	16.0
Media:				
Writer/Editor	4	16.0	0	0.0
Reporter	0	0.0	2	8.0
Technician	0	0.0	1	4.0
Researcher:				
Business	1	4.0	3	12.0
Government	1	4.0	1	4.0
At Home:	5	20.0	0	0.0
Total	25	100.0%	25	100.0%

Appendix M

Non-Amniocentesis Pregnancy Information

M. Non-Amniocentesis Group Only

9. Children from this marriage (Not including this pregnancy)

Age: _____	Sex: _____
_____	_____
_____	_____
_____	_____
_____	_____

10. Children from previous marriage:

Age: _____	Sex: _____
_____	_____
_____	_____

11. Have you or your spouse had a child with any physical, medical, or mental problems?

3 Yes Type of condition: Minimal Brain Damage, Congenital heart and kidney damage.

22 No

0 Unknown

12. Is this child now living?

3 Yes

0 No

22 Unknown

_____ Not Applicable

13. Where does this child now live?

___3___ The child is currently living at home with us.

___0___ The child is currently living with relatives.

___0___ The child is currently living at a special school.

___0___ The child is currently living at a medical facility.

___0___ The child is not living.

___0___ Other: _____

___22___ Not Applicable.

14. When did you/your wife first go to your physician for this pregnancy?

___25___ First or second month of pregnancy.

___0___ Third month

___0___ Fourth month

___0___ Fifth month

15. Was this pregnancy planned?

___20___ Yes. I/We wanted to get pregnant

___5___ No. I/We did not want to get pregnant.

___0___ Undecided. I/We did not care one way or the other.

16. How did you feel when you first found out that you/your wife were pregnant?

___11___ Not at all anxious.

___13___ Normal anxieties of pregnancy

___0___ Anxious because of a previous birth of a handicapped child.

___0___ Anxious because of a definite recurrence risk carried in my/our family.

0 Anxious because of my/my wife's age.

1 Anxious because I/we did not want additional children.

17. How do you now feel about the pregnancy?

9 I am not anxious at all.

13 I am somewhat anxious.

3 I am moderately anxious.

0 I am very anxious.

18. How confident are you that the baby you/your wife is carrying is normal?

12 I know the baby is normal.

13 I am not sure if the baby is normal.

0 I know there is something wrong with the baby.

0 I have no thoughts on the matter.

19. Have you/your wife ever had a sonogram? Reason for the test?

10 Yes

15 No

0 Maternal Anxiety

5 Breakthrough Bleeding

1 Multiple Birth Possibility

4 Doctor's Recommendation

0 Other: _____

20. Have you/your wife ever had an amniocentesis? Reason for the test?

0 Yes

Reason for Test: _____

25 No

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