ATTITUDES OF MEDICAL PERSONNEL TOWARDS PRENATAL SEX SELECTION THROUGH AMNIOCENTESIS AND ABORTION

A THESIS

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We hereby recommend that the thesis prepared under

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entitled Attitudes of Medical Personnel Towards

Prenatal Sex Selection

Through Amniocentesis and Abortion

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DEDICATION

This work is lovingly dedicated to my Grandpa, whom I remember.

Acknowledgments

The writer would like to thank the following individuals for their time, patience, and support: Deanna Tate, Toby Myers, Marjorie Whitehead, Vickie Venne, and Mary Jo Knobelsdorf. Thanks are also due to Phil for providing hope, understanding, and cheerful schedule-shuffling.

A final word of thanks goes to the 30 anonymous subjects who participated in this study. Their unselfishness and willingness to speak out enabled an idea to become a reality.

First comes love, then comes marriage
Then comes Jane with a baby carriage
I wish you hope, I wish you joy,
I wish you first a baby boy.
And when his hair begins to curl,
I wish you then a baby girl!

-Anonymous

CHAPTER 1

Introduction

Since the beginning of time, men and women have been trying to predict the sex of their children. Whether to ensure an heir or to balance a family, individuals have attempted to select or influence the gender of the future child. Markle and Nam (1971) describe various techniques of sex predetermination. For example, an Egyptian papyrus written over 4,000 years ago predicted that women with greenish cast were sure to have boys. The Hebrew Talmud forecast that placing the marriage bed in a north-south direction favored the conception of boys, and the ancient Hebrews also believed that the right testicle contained male semen while the left one contained female semen. Another theory held that the sex of the offspring was the same as the gender of the most "heavily sexed parent." Still another postulated that sex can be influenced by the side on which the woman lies during sexual relations, the point in the woman's monthly cycle, and even by the kinds of foods eaten before intercourse. All of these methods of sex determination were created and utilized in the absence of any existing sex-choice technology. Less than

two decades ago, however, an almost infallible method for pre-natal determination of sex became available: amniocentesis.

Amniocentesis is a procedure which allows examination of the karyotype (chromosomal characteristics) of the unborn fetus ("Hard Choices," 1981). During this procedure, liquid is drawn from the amniotic sac in which the approximately 16 week old fetus floats. This fluid contains cells sloughed off from the fetus. These cells are incubated, and they grow and multiply for a period ranging from ten days to two weeks. The cells are then placed on a glass slide, dried, and stained. Under a high-power microscope, the chromosomes of the fetal cells are identified and photographed. The images of these chromosomes are cut out and pasted up according to their size and shape, and the result is a set of chromosomes from a single fetal cell. In a normal human cell there are 23 pairs of chromosomes, each of which has known properties and characteristics.

Chromosomal abnormalities such as Down's Syndrome, as well as Tay-Sachs disease and other enzyme deficiency diseases, are now detectable, and if a disorder is found to exist, parents may choose to abort the pregnancy. The

chromosome array also reveals another piece of information: the sex of the fetus.

As it is now possible for the sex of the fetus to be determined pre-natally, it is probable that an individual may choose to abort the pregnancy based upon knowledge of the sex of the child. This potentiality raises issues that are no longer solely medical in nature. The mother and the fetus become the center of an ever-widening circle of effects, all of which are of interest to a variety of professionals. Human development specialists, members of the clergy, family therapists, philosophers, and sociologists are all concerned with the impact that amniocentesis and abortion may have upon the individual and society.

From the moment of conception, a child's emotional and physical environments are being determined by his parents. Once a child is selected on the basis of sex, expectations are raised as to that child's personality, his role in the family, and how he will meet the needs of those around him. Post-natally, these expectations may interfere with his psychological growth. For children, this growth is largely dependent upon the development of individuality, and the evolution of a stable self-concept. Strong expectations for the child by the parent can result in the child's feeling a need to conform to a given image,

rather than to express his uniqueness; should he not conform, he risks parental anger and disapproval. Problems such as child abuse or family dysfunction may then result.

The possible effects of amniocentesis and abortion when used for sex choice are thus a cause for concern for advisors and specialists in many fields. The use of such procedures by parents may have implications for the emotional and psychological well-being of their children, affecting in turn the family system and society as a whole. Therefore it is important to determine first whether use of these procedures will become a widespread phenomenon.

Statement of the Problem

As the availability of the amniocentesis procedure increases, so does the probability that individuals may request it for the sole purpose of identifying the sex of their child (Schmickel, 1981). Amniocentesis combined with abortion may thus serve as a method for controlling the sex of one's children, if the decision to abort is based upon the sex of the fetus. Fidell, Hoffman, and Keith-Spiegel (1979) suggest that when individuals are aware they have a choice in the matter, they will feel more strongly about making it. Today, due to the biomedical

revolution, amniocentesis is a reality, as are the attitudes toward it.

Purpose of the Study

The development of amniocentesis, and the possible use of amniocentesis and second trimester abortion for sex predetermination, has raised some dramatic ethical, legal, and medical questions (Dove & Blow, 1979; Elliott, 1979; Fletcher, 1979; Powledge & Fletcher, 1979; Goldman, 1980; "Amniocentesis and abortion," 1980). The focus of these questions often centers on those persons in the medical field who, by virtue of the services they offer, are caught between the available technology and the patient requesting that technology. Does a physician who is personally opposed to these uses of amniocentesis, have a professional responsibility to offer it to his patients who have no such objections? Should a woman be allowed an abortion that is desired because of the sex of the fetus? Or should a woman be denied an abortion for that same reason? These and other questions highlight the dilemma of the medical practitioner, and indicate the need for those in the field to be aware of their own feelings and opinions surrounding the issue. Practitioners in the medical community must be sure of their own biases before

attempting to teach, inform, and advise others on the question of sex selection.

The purpose of this study was to

1. Determine the influence of sex, marital status, number of children, occupation within the medical setting, and ethnic background upon the favorableness of respondents' attitudes toward the use of amniocentesis and second trimester abortion as a method of sex predetermination, as measured by responses to items on the Attitudes Towards Sex Predetermination Through Amniocentesis scale.

2. Determine the relationship of these variables to the opinions of respondents concerning each of the following:

a. Abortion for whatever reason
b. Abortion as a method of sex predetermination
c. Any method of sex predetermination
d. Acceptance of methods of sex predetermination for self
e. Acceptance of methods of sex predetermination for others.

Hypothesis

The following hypothesis will be examined:

There is no significant difference in the favorableness of perceptions of medical personnel toward the use of amniocentesis and abortion as a method of sex predetermination according to each of the following:

1. Sex
2. Marital status
3. Number of children
4. Occupation within the medical/health services field
5. Ethnic background.

These attitudes were measured by the Attitudes Toward Sex Predetermination Through Amniocentesis scale.

Assumptions

This study and the interpretation and discussion thereof was based upon the following assumptions:

1. that subjects would respond according to their true feelings, and
2. that any behavior on their part would be in accordance with their attitudes and opinions as stated in the questionnaire. For example, if the amniocentesis procedure were to become

widely available, that an individual who responded favorably to the use of amniocentesis on the questionnaire would in fact utilize it.

Limitations

As this study involves a survey of opinions of a specific, designated population, there are limitations on its generalizability to a larger, more heterogeneous population. The subjects in this study do not represent a cross-section of individuals on the basis of sex, race, geography, age, or any other variable.

Definition of Terms

The following definitions are presented to aid the reader:

amniocentesis - removal of amniotic fluid from a pregnant woman's uterus; this process reveals the chromosomal pattern of the developing child (Goldman, 1980)

abortion - premature expulsion of the fetus from the uterus within the first 20 weeks of pregnancy, before the fetus is viable ("Hard Choices," 1981)

karyotype - the sum total of the morphological characteristics of the chromosomes in a given cell (Fletcher, 1979)

sex predetermination - the act of determining the sex of the unborn fetus, before the birth of the child. Techniques include both pre- and post-coital methods ("Hard Choice," 1981)

Summary

Amniocentesis is a procedure which allows examination and evaluation of the unborn fetus. If chromosomal abnormalities are detected, parents may choose to abort the pregnancy, and spare themselves the birth of an impaired or deformed child. The amniocentesis technique, however, because it reveals the characteristics of all the chromosomes of a given cell, also provides another piece of information: the sex of the fetus. As the amniocentesis procedure becomes more available and less dangerous, it is probable that individuals may request it solely to discover the sex of the child; it is also probable that armed with this information, some may elect to terminate the pregnancy based solely on the sex of the child. As potential providers of this service, medical personnel must first come to grips with their own feelings on this issue, before attempting to help others deal with the same question. The purpose of this study was to provide a

survey of the attitudes of medical personnel towards the topic of sex selection through amniocentesis and abortion.

CHAPTER 2

Review of Literature

A review of the literature on the question of sex predetermination provides valuable insights into several aspects of the issue. Rosenzweig and Adelman (1976), in a survey of young, university-educated married couples, suggest that sex choice will be accepted and employed by the majority of those individuals. The study indicates that prospective methods of sex predetermination (e.g., a pre-coital, sex-selective pill) is much preferred to retrospective methods such as abortion. Subjects gave more support to the public option for sex-choice methods than to their personal option, and the emphasis was on choosing a second child of opposite sex from the first, rather than selection of exact sex sequence. A survey of university undergraduates, however, indicated that 60% of that population would not utilize any sex choice method (Fidell, et. al., 1979). The researchers advise that these attitudes may change as sex-choice technology becomes available, and as the question becomes a relevant one for the respondents.

In another study undertaken in the absence of any real sex-choice technology, Westoff and Rindfuss (1974) found that 46.7% of a sample of married women were opposed to using methods of sex predetermination, 38.8% were in favor of them, and 11.6% were neutral. This study dispelled the assumption that parents would routinely choose the sex of their children with an effective, suitable technique. The study upheld the assumption that sex-choice technology would not in and of itself alter sex preferences, but would only permit the realization of such preferences.

Markle and Nam (1971) dealt with methods of sex selection used prior to conception (pre-coital methods); these methods involve separating the X and Y sperm. Of a sample of undergraduates, 26% were in favor of using sex choice methods for themselves, 40% were opposed, and 33% were undecided. Matteson and Terranova (1977), also investigating methods used prior to conception, found that undergraduates would allow others to use sex predetermination, but varied widely as to whether they would utilize the technique themselves.

The literature reviewed above deals solely with the pragmatic, practical applications of sex-choice methods, and does not touch upon the ethical questions involved.

The medical, ethical, and legal debate on the topic is still raging in the pages of journals around the world, and already constitutes quite a large body of literature. The debate most frequently takes place at one of four levels ("Amniocentesis and abortion for sex choice," 1980): (a) whether abortion itself is immoral; (b) whether amniocentesis should be performed at all; (c) whether amniocentesis and abortion should be used to prevent birth defects or disease; and (d) whether these procedures should be used for the purpose of sex choice. The author points out that the fourth level is the one from which most arguments arise, and emphasizes that the objections rest on circumstances external to the actual case of the particular individual (such as scarcity of medical resources, or possible risks to the mother). He suggests, too, that even if these externalities were rectified, the objector would still object.

In their 1979 article, Dove and Blow advise that the physician should refuse to perform an amniocentesis for the purpose of sex determination. The authors believe that the doctor's suggestion should carry more weight than a woman's request, because medically he has "a much deeper knowledge of her circumstances and whether or not the pregnancy was desirable." Dove and Blow conclude that

although women are increasingly applying pressure for termination of pregnancy for social rather than medical reasons, the final decision for abortion is a medical one alone. Elliott (1979) agrees, stating that it is the responsibility and the moral obligation of the physician to safeguard the use of the amniocentesis procedure, and to see that it is not abused. Elliott adds that most genetics clinics contacted refuse to handle cases in which the parents want fetal sex information. These patients must seek out other facilities for this service, such as laboratories which accept samples through the mail.

As sex-choice technology becomes more widely available, those who are opposed to its use are confronting the reality that their objections may be overridden. These individuals are now turning away from the moral issues around amniocentesis and abortion, and are instead attempting to assist workers who may be providing this service. Powledge and Fletcher (1979) propose guidelines for the development and institutionalization of prenatal diagnostic programs, and seek to help workers in this area in providing the most favorable circumstances for careful decision-making by the parents. An assumption of this paper is that amniocentesis and abortion will be used for sex choice, despite the authors' objections, and given

that, they commit themselves to ensuring that the procedure is safe and accurate. Their proposals include the use of only high-quality laboratory work; that test sensitivity should be improved; that parents should receive short and long-term follow-up care; that patients should receive pre- and post-amniocentesis counseling; and that the patients' privacy should be protected. The authors hope that one of the ultimate goals of prenatal diagnosis should be the treatment and eventual cure of disease in the fetus or infant.

Many researchers are in favor of the increasing use of sex-choice technology, and some of the recent literature represents their attempts to answer to others' objections. Goldman (1980) speaks to the question of whether it is morally permissible for the state to establish public institutions which will provide amniocentesis for sex selection purposes. The author approves of using public funds in this manner only if the practice does not result in a pattern of activity which is detrimental to the fabric of society. For example, it is possible that widespread availability of amniocentesis for sex selection could significantly upset the sex ratio within society. If this were the case, the government may legitimately halt the provision of this service. If the availability of

the procedure resulted in more abortions of female fetuses than of male fetuses, the author warns that this might result in damage to the self-respect of women, and that in this instance the government should again refuse to provide this non-essential service. In fact, researchers have found that under the option of sex choice, ideal families would be small, and with a slight or nonexistent preference for boys (Markle & Nam, 1971; Westoff & Rindfuss, 1974; Rosenzweig & Adelman, 1975; Coombs, 1977; Fidell et. al., 1979).

Fletcher (1979) argues that the existence of "trivial" reasons for abortion (the sex of the fetus, for example) should not deter practitioners from the larger goal of protecting the right of women to make such decisions in the first place. To employ public or medical tests of reasons, Fletcher says, provides opportunities to obstruct and defeat society's obligation to grant women the freedom to determine their own reproductive futures. Although abortion for sex choice is legal, he advises that amniocentesis and abortion used for this reason should be given lowest priority. But within the limits of availability of the procedure, it is fairer to allow it for the patients even though the physician may personally disapprove of the request.

Schmickel (1980) takes up the question of the situation when the physician believes that the mother's request is morally wrong. After presenting both the physician's and the mother's viewpoints, however, he dismisses the problem. He states instead that due to the rapid advancement of technology and the changing attitudes towards sexual roles, the question of amniocentesis and abortion for sex choice will no longer be an area of concern. Schmickel looks forward to this juxtaposition of technology and sex roles, and to the time when the moral issues may be simplified or done away with altogether.

An additional body of literature beyond the scope of the present study deals with the effects of sex choice and birth order on family life. Amniocentesis and abortion, when used for sex choice, have a direct effect on these two variables, and thus have implications for the emotional growth and well-being of the child. These works, as presented in Appendix G, include examination of the problem of the unrealistic expectations of parents for children, and the potential dangers of child abuse and family dysfunction.

Summary

The review of literature on the subject of sex predetermination is useful in that it presents a comparison

between the views of the general public and those of the medical community. Opinions vary widely within each sector, as the topic is a controversial one, yet some similarities may be found. Neither group denies that amniocentesis and abortion used for sex choice is a sensitive moral issue, yet their reactions to it may differ. The public has the option of turning away from the problem and refusing to consider it, but the medical community has a responsibility to remain informed. Physicians, nurses, and counselors, as potential providers of the service, must give careful thought to both the pros and cons, regardless of their personal beliefs. They must also fully understand the social implications involved in implementing such procedures. On the other hand, abortion is legal whatever the reason, and an individual has the right to an abortion, but a private physician has the right to turn down any patient. So although the government insists that abortion services are available, no individual can be compelled to perform an abortion.

Another point to be considered when evaluating opinions is that the use of amniocentesis and abortion can have a strong positive valence for the individual desiring those procedures. For the physician or geneticist, however, who must look at the problem on a larger scale,

the valence may be a negative one. If every family chose to have only male children, for their own personal reasons, society would suffer in terms of the resulting sex ratio. The medical community must be mindful of the cumulative effect of many individual freedoms.

Perhaps the most striking similarity between the views of the general public and the medical community is that of tolerance for others' actions. Several studies report that although the subjects would not use methods of sex predetermination for themselves, they were in favor of others using them if they so desired (Rosenzweig & Adelman, 1976; Matteson & Terranova, 1977; Markle & Nam, 1971). As for the medical community, most physicians or counselors allow other professionals the right to perform these procedures, but would refuse anyone who came to their office seeking such help (Fletcher, 1979; Elliott, 1979; Dove & Blow, 1979; Schmickel, 1980). There seems to be a tendency to want to wash one's hands of the dilemma and to leave the decision-making to others, perhaps due to the complexity of the situation and the energy required to establish personal and/or professional policies.

Although the literature includes several reports on physicians' professional opinions and guidelines, there has been nothing to date concerning the physician's

personal feelings and beliefs: what would he do if faced with the possibility of sex choice for his family? As an informed member of the medical community, he is hopefully more familiar with the intricate aspects of the problem than a layman. Based on his professional knowledge, what would his personal decision be? The purpose of this study was to examine this facet of the issue, a facet which has previously remained unexplored.

CHAPTER 3

Methodology

Subjects

The subjects in this study were 30 parents of children attending the Texas Medical Center Child Care Center in Houston, Texas, during July, August, and September of 1981. They were selected on the basis of their employment in a medical setting and because they were parents with young children.

Fidell et. al. (1979) report that when individuals become aware that they have a choice in a matter, they will feel more strongly about making it. Markle and Nam (1971) recommend that subject material in a survey be salient to the respondent; they experienced confounding of their results due to the fact that many of their subjects were not familiar with the ideas concerning the research topic. Based on the findings of these two studies, it seemed appropriate to select a population whose members would have been acquainted with the procedures of amniocentesis and abortion. Thus medical personnel were used as subjects.

In addition, most of the surveys to date involve undergraduates as subjects (Fidell et. al., 1979; Matteson & Terranova, 1977; Markle & Nam, 1971). Yet evidence indicates that questions about sex selection of offspring would be more relevant to married couples with children (Fidell et. al., 1979; Markle & Nam, 1971; Rosenzweig & Adelman, 1976; Westoff & Rindfuss, 1974; Cutright, Belt, & Scanzoni, 1974). For this reason, the Texas Medical Center Child Care Center was selected as the source of subjects; the individuals there are medical personnel, or work in the medical field, and are themselves parents.

Instrument

The questionnaire used in this study was the Attitudes Toward Sex Predetermination Through Amniocentesis scale (Appendix A). This instrument, developed by the researcher, was devised to measure the respondents' favorableness of attitudes toward abortion, sex predetermination, and the use of amniocentesis and abortion for sex selection. It also attempted to measure the respondents' favorableness towards the use of these procedures by others as well as by themselves. The questionnaire was developed on the basis of several core concepts drawn from the literature, as seen in Appendix B. The scale is composed of a

twelve-item Likert type scale, with five degrees of response to each item ranging from "Strongly Agree" to "Strongly Disagree." The items are scored in such a way that the most favorable response is given the highest score and the least favorable, the lowest score (Appendix C). Items are arranged in both positively and negatively-worded statements to avoid set response. For example, Item #1, "If I could choose the sex of my unborn child, I would do so," is regarded as favorable to the concepts of sex choice, amniocentesis, and abortion. Therefore, a response of "Strongly Agree" to this item is coded as 5, "Agree" as 4, "Undecided" as 3, "Disagree" as 2, and "Strongly Disagree" as 1. Item #2, "The sex of the fetus should remain unknown until the baby is born," is negatively, rather than favorably, worded toward the concepts in this study. Keeping in mind that the highest score represents the highest degree of favorableness, this item must be coded in reverse manner. A "Strongly Disagree" response to this item implies favorableness toward the constructs, so it is coded as 5. "Disagree" is 4, and so on to 1 for "Strongly Agree." Six items in the scale (#1, 3, 8, 9, 10, and 11) are positively worded, and six items (#2, 4, 5, 6, 7, and 12) are negatively worded.

Four items in the scale (#1, 4, 10, and 12) question attitudes towards the use of sex choice procedures for the subject himself, and four items (#3, 5, 9, and 11) question attitudes towards the use of those procedures by others. The remaining four items (#2, 6, 7, and 8) explore general opinions toward the morality of the procedures.

No reliability tests were performed on the Attitudes Toward Sex Predetermination Through Amniocentesis scale. A genetics counselor with the Baylor College of Medicine in Houston, Texas, provided expert judgment about the appropriateness of the content coverage in the instrument, and on the basis of her review, the scale was determined to have content validity (Appendix F).

Accompanying the questionnaire, and included in the instrument packet, were: (a) a cover letter from the director of the Texas Medical Center Child Care Center documenting the Child Care Center Administrative Board's approval of the research; (b) a cover letter from the researcher to the potential respondent, explaining the research and assuring the subjects of their anonymity; and (c) following the questionnaire, a brief demographic survey asking the subject's sex, marital status, number of children and their ages and sexes, occupation, and ethnic background.

Procedures

The instrument was distributed to the 175 parents with children enrolled in the Texas Medical Center Child Care Center, according to standard Texas Woman's University Human Subjects guidelines. The packets were prepared by the researcher and taken to the Child Care Center; employees there addressed the envelopes utilizing the Center's mailing list, and mailed them out. Questionnaires were mailed out once; confidentiality constraints prevented the utilization of follow-up procedures. The researcher was thus blind to the identities of the individuals receiving the questionnaire. Respondents returned the completed questionnaire anonymously to a box in the Center lobby, as requested in the cover letter. Completion of the questionnaires was voluntary, and the act of returning the questionnaire served as consent to participate in the research. The subjects remained anonymous and therefore unknown to the researcher.

After the questionnaires were collected from the Child Care Center by the researcher, they were coded according to the method described above in "Instrument." Items #1, 3, 8, 9, 10, and 11 were coded according to the following: Strongly Agree=5, Agree=4, Undecided=3, Disagree=2, and Strongly Disagree=1. Items #2, 4, 5, 6,

7, and 12 were coded according to the following: Strongly Agree=1, Agree=2, Undecided=3, Disagree=4, and Strongly Disagree=5. The higher the value, the more favorable was a response in terms of attitudes towards sex predetermination. Thus, the lowest total score possible for a subject would be 12, if he responded in the least favorable way on each of the 12 items; the highest possible score, indicating the highest degree of favorableness, would be 60.

The demographic data sheet accompanying the questionnaire was similarly coded (Appendix D). Once coded, the questionnaires were ready for statistical analysis.

Analysis of Data

Coding of the questionnaire was carried out in the following manner: the digits 1 through 5 indicated the order of magnitude of the response to each item. A code of 1 represented a response least favorable to the item, and a code of 5 represented the most favorable response. However, there is no implication about the extent to which a response is more favorable than another; the responses are merely ranked in order of least to most favorable. The items on the demographic data sheet, as they are simply qualitative or categorical, form a nominal scale of measurement.

The first analysis of data involved obtaining a frequency and percentage distribution of the responses to the questionnaire. These statistics describe the frequency of occurrence of each response for each of the 12 items, and result in a one way frequency distribution. This distribution presented the raw count of responses for each item, the percentage of responses based on the total number of responses, and cumulative percentages. Other descriptive statistics obtained included mean, standard error, standard deviation, variance, kurtosis, skewness, range, minimum, and maximum.

The second analysis performed on the data was the development of crosstabulations, or contingency tables, which provided joint frequency distributions of responses as defined by the categories of two or more variables. This analysis yields information on the relationships among two or more of the variables; for example, that a subject with a certain occupation almost always answered positively on Item #6. This procedure also provided information on measures of association, that is, the extent to which responses of one sort and responses of another sort occur together. Tests of statistical significance, including Chi-square and the contingency coefficient, revealed the probability that the observed relationship

among variables would have happened by chance, when no relationship exists between those variables in the population. The Chi-square thus provided a measure of the discrepancy between expected and obtained frequencies.

The final statistical analysis performed was that of one-way analysis of variance, which provides information of the significance of the differences between the responses on each item. An item analysis was conducted, comparing categorical responses on items to categorical responses on demographic variables. This analysis is based on four assumptions:

1. the sampling within sets is random
2. homogeneity of variance (variances from within the sets of data are approximately equal)
3. the population is normally distributed
4. the contributions to total variance is additive.

These assumptions have been met in this study. Although the case against #2 and #3 may be argued, the F-test is insensitive to nonnormality and inequality of variances with equal n's (Guilford & Fruchter, 1978).

Summary

The subjects in this study were selected on the basis of their employment in the medical professions, and because

they were parents with young children. They included 30 parents of children enrolled in the Texas Medical Center Child Care Center. Subjects participated voluntarily and anonymously by completing the Attitudes Toward Sex Predetermination Through Amniocentesis questionnaire. This instrument, developed by the researcher, was not tested for reliability, but was determined to have content validity.

After collection of the completed questionnaires, the responses were then coded and prepared for computer analysis. Statistical procedures utilized on the data included frequency and percentage distributions, measures of variability, crosstabulations, measures of association, tests of statistical significance, and one-way analysis of variance. The appropriate assumptions were met for the utilization of these techniques.

CHAPTER 4

Results

Characteristics of Subjects

Of the 175 questionnaires distributed, 30 were completed and returned, resulting in a response rate of 17%. Of the 30 subjects, 28 were female (93%) and 2 were male (7%). The breakdown by occupation was as follows: 22 (73%) nurses, 2 (7%) secretaries, 2 (7%) administrators, 1 (3%) technician, 1 (3%) occupational therapist, and 2 (7%) classified as "Other." The majority of respondents were Caucasian (25, or 83%), followed by Black (2, or 7%), Oriental (2, or 7%), and not mentioned (1, or 3%). Twenty-four (80%) of the subjects were married, and six (20%) were not. Twenty subjects (67%) had one child, and the remaining 10 (33%) had two children. Of the subjects' 40 children, 18 were male and 22 were female. They ranged in age from 11 weeks to 8½ years, with an average age of slightly over 3 years. The sample was heavily biased toward female, Caucasian nurses, and generalizations to the broader population are not warranted. The low return rate (17%) further limits the generalizability of the findings

of this study. The findings must thus be interpreted with caution.

Findings

The hypothesis under examination in this study was as follows: "There is no significant difference in the favorableness of perceptions of medical personnel toward the use of amniocentesis and abortion as a method of sex predetermination according to each of the following: sex, marital status, number of children, occupation within the medical/health services field, and ethnic background." The findings that relate to this hypothesis are as follows:

The lowest possible score for a subject on the questionnaire was 12; the highest, 60. The range of responses of the 30 subjects in this study was from 15 to 53; the mean (average) total score was 27.23, the mode 22, and the median 26.5. Standard deviation for these response totals was 8.08. Since a total of 36 would indicate an opinion neither for or against ("Undecided") the use of amniocentesis and abortion for sex choice, the sample seems to have responded somewhat negatively towards these procedures. Had a hypothetical subject responded "Disagree" to each question, the total would have been 24. Because the mean total response approaches this value, this may

be taken to mean that the overall response of this sample to the concepts in question was that of "Disagree."

The percentage and frequency distribution for the responses to each question are found in Table 1. In all cases but two, the modal (most frequent) response was that of strongly unfavorable or unfavorable toward the concepts in this study. The two exceptions are Items #2 and #6, on which the modal responses were favorable towards the concepts of abortion and prenatal sex determination. Item #10 ("I would abort on the basis of the sex of the child") produced the smallest standard deviation among responses, 0.254, with a mean response of just over 1.0. This implies that the most agreement between subjects was reached on this item, and that the mean response to that item was "Strongly Disagree." Subjects agreed least in their responses to Item #1 ("If I could choose the sex of my unborn child, I would do so"). Although the mean response was 2.8 (approaching "Undecided"), the standard deviation for this item was 1.54. Means, modes, and standard deviations for all items are given in Table 2.

Table 1

Frequency and Percentage Distribution of Responses

Item	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
1. If I could choose the sex of my unborn child, I would do so.	6	20	5	17	5	17	5	17	9	30
2. The sex of the fetus should remain unknown until the baby is born.	5	17	5	17	3	10	12	40	5	17
3. If others want to choose the sex of their unborn child in whatever way, that is all right with me.	4	13	5	17	2	7	11	37	8	27
4. I would not consider using any method of sex predetermination.	5	17	13	42	5	17	5	17	2	7
5. No one should be allowed to choose the sex of their children.	3	10	7	23	5	17	9	30	6	20
6. Abortion for any reason is immoral.	4	13	1	3	3	10	13	43	9	30
7. Abortion based only on the sex of the child is immoral.	21	70	4	13	0	0	3	10	2	7
8. I feel it is acceptable to abort on the basis of the sex of the child.	1	3	0	0	1	3	3	10	25	83
9. A woman has a right to an abortion, whatever the reason.	2	7	5	17	0	0	12	40	11	37
10. I would abort on the basis of the sex of the child.	0	0	0	0	0	0	1	7	28	93
11. It is acceptable to me if others want to abort on the basis of the sex of the child.	18	60	9	30	1	3	1	3	1	3
12. I would not use amniocentesis and early abortion as a method of choosing the sex of my child.	24	80	5	17	0	0	0	0	1	3

Note. n for all items = 30.

Table 2

Means, Modes, and Standard Deviations Per Response

Item	Mean	Mode	Standard Deviation
1. If I could choose the sex of my unborn child, I would do so.*	2.8	1.0	1.54
2. The sex of the fetus should remain unknown until the baby is born.**	2.8	1.0	1.54
3. If others want to choose the sex of their unborn child in whatever way, that is all right with me.*	2.53	2.0	1.41
4. I would not consider using any method of sex predetermination.**	2.53	2.0	1.17
5. No one should be allowed to choose the sex of their children.**	3.27	4.0	1.31
6. Abortion for any reason is immortal.**	3.73	4.0	1.31
7. Abortion based only on the sex of the child is immoral.**	1.7	1.0	1.29
8. I feel it is acceptable to abort on the basis of the sex of the child.*	1.3	1.0	.84
9. A woman has a right to an abortion, whatever the reason.*	2.17	2.0	1.29

Table 2 (cont.)

Item	Mean	Mode	Standard Deviation
10. I would abort on the basis of the sex of the child.*	1.07	1.0	.25
11. It is acceptable to me if others want to abort on the basis of the sex of the child.*	1.6	1.0	.97
12. I would not use amniocentesis and early abortion as a method of choosing the sex of my child.**	1.3	1.0	.79

* SA = 5, A = 4, U = 3, D = 2, SD = 1

** SA = 1, A = 2, U = 3, D = 4, SD = 5

Skewness on most items was very close to 0; that is, the distribution of responses approximated a normal curve. On Item #12, however ("I would not use amniocentesis and early abortion as a method of choosing the sex of my child"), the responses had a strong positive skew. This indicates that the responses were clustered more to the left of the mean with most of the extreme values to the right. This fact, taken with the information from Table 1, suggests that were it not for the one extreme response of "Strongly Disagree" to this item, that the mean response would be less than 1.3. The attitudes of all but one subject were thus highly unfavorable towards their personal use of amniocentesis and abortion for sex choice.

Examination of Table 2 illustrates the difference between attitudes towards personal use of these procedures, and attitudes towards use of these procedures by others. Items #1, 4, 10, and 12, which deal with the subjects' use of amniocentesis and abortion themselves, had a mean response ranging from 1.07 to 2.8. Items #3, 5, 9, and 11, questioning tolerance for others' use of these techniques, had mean responses ranging from 1.6 to 3.2. Although all responses were slightly unfavorable to the concepts in question, subjects were slightly more favorable towards their use by others than by themselves.

Crosstabulation analysis

Crosstabulations performed on the data revealed that several relationships between pairs of variables were significant at the .05 level (Table 3). According to the Chi-square and contingency coefficient statistics, these relationships were stronger than those that might occur by chance. Those relationships included: marital status of the subject and the response to Item #6; number of children and the response to Item #7; ethnic background and the response to Item #12; and occupation and the responses to Items #2, 3, and 7.

One relationship depicted in Table 3 is that between the number of children of the subject and the way that subject responded to Item #7 ("Abortion based only on the sex of the child is immoral"). Seventy-five percent of subjects with one child responded "Strongly Agree" to this item, 15% "Disagree," and 10% "Strongly Disagree." Of subjects with two children 60% responded "Strongly Agree" and 40% responded "Agree"; none responded unfavorably. All of the subjects (100%) of those responding "Disagree" or "Strongly Disagree" to this item were those subjects with one child; i.e., only subjects with one child felt that abortion based on the sex of the child is moral.

Table 3

Significant Comparisons of Subject Variables and Item Responses with Chi-Square Test

Item/Variable	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	X^2	p
	%	%	%	%	%		
Abortion for any reason is immoral.						13.33	.01*
Married n = 24	17	0	4	54	25		
Not Married n = 24	0	17	33	0	50		
Abortion based only on the sex of the child is immoral.						10.71	.01*
One Child n = 10	75	0	0	15	10		
Two Children n = 20	60	40	0	0	0		
The sex of the fetus should remain unknown until the baby is born.						34.25	.02*
Nurse n = 22	23	13	9	41	14		
Technician n = 1	0	0	100	0	0		
Secretary n = 2	0	0	0	0	100		
Occ. Therapist n = 1	0	0	0	100	0		
Administrator n = 2	0	100	0	0	0		
Other n = 1	0	0	0	100	0		
If others want to choose the sex of their unborn child in whatever way, that is all right with me.						32.13	.04*
Nurse n = 22	13	14	0	41	32		
Technician n = 1	0	0	0	100	0		
Secretary n = 2	50	0	0	0	50		

Table 3 (cont.)

Item/Variable	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	X^2	p
	%	%	%	%	%		
Occ. Therapist n = 1	0	0	100	0	0		
Administrator n = 2	0	50	50	0	0		
Other n = 2	0	50	0	50	0		
Abortion based only on the sex of the child is immoral.						32.97	.01*
Nurse n = 22	77	13	0	5	5		
Technician n = 1	100	0	0	0	0		
Secretary n = 2	50	0	0	0	50		
Occ. Therapist n = 1	0	100	0	0	0		
Administrator n = 2	0	0	0	100	0		
Other n = 2	100	0	0	0	0		
I would not use amniocentesis and early abortion as a method of choosing the sex of my child.						17.64	.01*
Caucasian n = 25	84	16	0	0	0		
Black n = 2	100	0	0	0	0		
Oriental n = 2	0	50	0	0	50		
Not Mentioned n = 1	100	0	0	0	0		

$p < .05$

Other parts of Table 3 present similar relationships between subject variables and their responses to certain items. Occupation of the subject produced the most significant differences among responses to Items #2, 3, and 7; for example, nurses varied widely in their response to Item #2, while the other groups tended to agree on this item. And on Item #8, while the response to Orientals ranged from "Agree" to "Strongly Disagree," none of the other ethnic groups responded other than "Strongly Agree" or "Agree."

Analysis of Data

Several one-way analyses of variance were performed to determine the significance of the difference between the mean responses to each item. Those that proved significant at the .05 level included: sex of the subject by the response to item #5; occupation of the subject by Item #4; and ethnic background by Items #1, 6, 7, and 12 (see Table 4). A significant F-ratio for each of these analyses suggests that the differences in responses to an item were attributable to more than chance. For example, the response to Item #12 ("I would not use amniocentesis and early abortion as a method of choosing the sex of my child") differed significantly according to the ethnic

Table 4

Significant Analyses of Variance of

Item Responses by Subject Variables

Item/Variable	F	$\bar{X}$	F-ratio	p
1. If I could choose the sex of my unborn child, I would do so.[a]				
Caucasian	25	2.4	3.59	.03*
Black	2	4.5		
Oriental	2	4.0		
Not Mentioned	1	4.0		
4. I would not consider using any method of sex predetermination.[b]				
Nurse	22	2.2	3.17	.02*
Technician	1	3.0		
Secretary	2	4.0		
Occ. Therapist	1	2.0		
Administrator	2	3.0		
Other	2	4.5		
5. No one should be allowed to choose the sex of their children.[b]				
Male	2	1.5	4.337	.05*
Female	28	3.4		
6. Abortion for any reason is immoral.[b]				
Caucasian	25	3.8	4.90	.01*
Black	2	4.5		
Oriental	2	1.0		
Not Mentioned	1	5.0		

Table 4 (cont.)

Item/Variable	F	$\bar{X}$	F-ratio	P
7. Abortion based only on the sex of the child is immoral.[b]				
Caucasian	25	1.4	5.69	.01*
Black	2	4.5		
Oriental	2	2.5		
Not Mentioned	1	1.0		
12. I would not use amniocentesis and early abortion as a method of choosing the sex of my child.[b]				
Caucasian	25	1.2	11.51	.01*
Black	2	1.0		
Oriental	2	3.5		
Not Mentioned	1	1.0		

a - SA = 5, A = 4, U = 3, D = 2, SD = 1

b - SA = 1, A = 2, U = 3, D = 4, SD = 5

df = 29

* $p < .05$

background of the respondent. The mean response for Caucasians was 1.16, for Blacks 1.0, for Orientals 3.5, and for Not Mentioned 1.0. In this instance, there was a .0001 probability that that particular response pattern would occur by chance.

The one-way analysis of variance of ethnic background by Item #12 suggests that Orientals were significantly more in favor of amniocentesis and abortion than were the other ethnic groups. Another significant analysis of variance indicated that females were more tolerant than males of others being able to choose the sex of their children. Although only two of the subjects were males, their average response was unfavorable towards others choosing the sex of their children. The mean response of the 28 females was slightly favorable towards others choosing the sex of their children.

Attitudes towards personal use of sex predetermination differed sharply according to occupation. In order of least to most favorable attitudes towards sex predetermination, the occupations were: occupational therapist, nurse, technician and administrator, secretary, and "Other." Secretary and "Other" were the two occupation groups responding favorably to this concept.

Another significant analysis of variance revealed that Caucasians were strongly against choosing the sex of their child, compared to the other ethnic groups. Orientals were strongly in favor of choosing the sex of their child, and Blacks were also in favor of using these techniques. Caucasians were the only ethnic group with unfavorable attitudes towards sex choice.

As to the question of the morality of abortion itself, Orientals were the only ethnic group that believed abortion was immoral. As this appears inconsistent with the findings of the Orientals' responses to other items, it is possible that the two Orientals surveyed both misunderstood the wording of Item #7. Caucasians were slightly favorable towards abortion, Blacks favorable, and "Not Mentioned" strongly favorable.

The final significant analysis of variance showed that the Blacks surveyed did not feel that abortion based on the sex of the child is immoral. The other ethnic groups surveyed had unfavorable attitudes towards abortion based only on the sex of the child, with "Not Mentioned" being the most unfavorable.

The null hypothesis for this study was rejected for the variables of sex, occupation within the medical field, and ethnic background. These variables had a significant

relationship to the favorableness of subjects toward amniocentesis and abortion. The variables of marital status and number of children did not produce a significant effect on the responses; therefore, the null hypothesis was accepted for those variables.

Summary

Of 175 questionnaires distributed, 30 were completed and returned. Due to the low response rate and small cell size, results must be interpreted with caution. The subjects were predominantly female Caucasian nurses with one child. The results indicated an overall response unfavorable to the concepts of amniocentesis and abortion for sex choice, with subjects slightly more favorable towards the use of these procedures by others. Statistical analyses yielded significant differences among subjects' responses according to their sex, occupation within the medical field, and ethnic background; the null hypothesis was thus rejected for those variables.

CHAPTER 5

Summary, Conclusions, and Recommendations

Summary

The purpose of this study was to determine the attitudes of medical personnel with children towards the use of amniocentesis and abortion for prenatal sex selection. It also attempted to determine the favorableness of attitudes towards abortion, sex choice, and the use of these procedures by others as well as the respondent.

The Attitudes Towards Sex Predetermination Through Amniocentesis scale was distributed to 175 parents of children enrolled in the Texas Medical Center Child Care Center; 30 questionnaires were returned. Subjects participated anonymously and voluntarily in the study.

The Texas Medical Center Child Care Center was chosen as the source of subjects based on suggestions and/or recommendations in the literature. These included the use of a sample group that is familiar with the topics in question (Fidell et. al., 1979; Markle & Nam, 1971), that is married or has been married, and that has children (Fidell et. al., 1979; Markle & Nam, 1971; Rosenzweig & Adelman, 1976; Westoff & Rindfuss, 1974; Cutright, Belt,

& Scanzoni, 1974). The sample of subjects for this study were heavily biased towards female Caucasian nurses. Although the results are thus not generalizable to a broader population, they do have value as being descriptive of a highly specific, homogeneous group.

The responses to the items on the questionnaire were coded and prepared for computer analysis. Using SPSS (Statistical Package for the Social Sciences), the following analyses were performed: frequency and percentage distributions, resulting in a one-way frequency distribution; crosstabulations, which produced several contingency tables; and one-way analyses of variance. Tests of statistical significance, including Chi-square, contingency coefficient, and F-ratio, were performed for each analysis. Other statistics obtained were mean, standard deviation, variance, kurtosis, skewness, range, minimum, and maximum.

Results of several statistical analyses indicated a generally unfavorable response toward the concepts of amniocentesis and abortion. In addition, females were more favorable than males towards these procedures, nurses and "Other" more favorable than other occupations, and Caucasians less tolerant than other ethnic groups.

Conclusions

Several statistically significant conclusions may be drawn from examination of the results. Although the response totals for the 30 subjects varied widely, the average total corresponded to an attitude of "Disagree" towards the concepts in question, namely, amniocentesis and abortion used for sex choice. And while the subjects were personally opposed to the use of these procedures, they recognized the right of others to use them if they so desired.

Additionally, the null hypothesis was rejected for the variables of sex, occupation within the medical field, and ethnic background. These variables had a significant relationship to the favorableness of subjects toward amniocentesis and abortion. The rejection of the hypothesis is significant in that only 30 subjects responded; out of these, 28 were female, 22 were nurses, and 25 were Caucasian. A larger, less biased sample with more equal n's might produce different results.

The variables of marital status and number of children did not produce a significant effect on the responses; therefore, the null hypothesis was accepted for those variables.

Another conclusion that cannot avoid being drawn is that the topics under consideration in this study are highly controversial. Several subjects, although not specifically requested to, wrote comments both short and lengthy on the reverse side of the questionnaire (see Appendix E). Some seemed to be qualifying their answers to the various items, while others appeared to want to go on record and have their voice heard. These subjects appeared reluctant to restrict their opinions to within the strict parameters of the questionnaire, and although they responded anonymously, wanted to correct any impressions of themselves that their answers to the questionnaire may have left.

Recommendations

Further studies on this topic are suggested and encouraged, especially as sex choice technology becomes more widely available. One difficulty with new questionnaires is the problem of reliability, and it is recommended that reliability tests first be performed on the Attitudes Towards Sex Predetermination Through Amniocentesis scale. These tests, designed to reduce measurement error, could take the form of the retest method, the subdivided-test method, and methods concerning internal consistency (such

as coefficient alpha). These procedures would establish the instrument as a reliable measure capable of producing meaningful scientific findings.

It is unknown what contributed to the low (17%) response rate in this study. The low rate may have been due in part to the fact that the questionnaires were mailed to the subjects, and that no follow-up procedures were feasible. Thus, in order to respond, the subject had to complete the questionnaire, remember to take it to the Child Care Center, and then actually do so, all of which requires a good deal of effort. If the questionnaires had been distributed in person, and then filled out on the spot, perhaps the subjects would have been more motivated to respond. Second and third mailings of the questionnaires, had they been utilized, might also have improved the response rate by reaching those subjects who did not respond originally.

Another problem with the study as it stands is the homogeneity of the subjects, with the majority of them being female Caucasian nurses. This is largely a result of choosing a child care center as a source of subjects; it stands to reason that the patrons of such an institution would be young, employed females. Although the preponderance of nurses cannot be explained (perhaps it is

because they make up most of the female work force in the medical field), further studies should attempt to tap a wider range of subjects within the medical profession: physicians, technicians, researchers, medical students, and the like. In addition to having access to a broader variety of occupations, males might more likely be included as subjects.

If a larger-scale study is desired, the questionnaire might be administered to two groups: one, in which the subjects are employed in the medical field, and two, in which the subjects have non-medical occupations. The present study surveys the opinions of those in medical professions, but can make no distinctions between the attitudes of that group as compared to anyone else. It would be interesting to determine if the opinions of medical personnel are in fact the same as those of the general public, or if they are more or less favorable towards amniocentesis and abortion. Of course there remains the possibility that the public would not yet be familiar with the use of these procedures for sex choice, in which case the data may be confounded.

In contrast to studies concerning other topics, this study and the ideas it examines gains in importance and value with the passage of time. Society is on the brink

of a biomedical revolution, but that revolution can only take place through the support of many. In attempting to survey the attitudes of those potential soldiers of the revolution, workers in the medical field, this study has shown that they would prefer to remain conscientious objectors. Although they are members of a profession that is striving to advance technology, as individuals they choose not to utilize that knowledge. The results indicate the possibility that the technology of amniocentesis and abortion, when combined and used for the purpose of sex selection, has left many wishing for a return to the age of innocence.

APPENDIX A

Texas
Medical
Center
Inc.

CHILD CARE CENTER
1200 Holcombe
Houston, Texas 77030
713/795-0654

Marjorie P. Whitehead
Director

Dear Parents:

This research project has been approved by the Child Care Center Administrative Board, however, you are under no obligation to complete the questionnaire.

If you wish to participate, please return the completed questionnaire to the Child Care Center.

Thank you.

Sincerely,

Marjorie Whitehead
Director

sh

TEXAS WOMAN'S UNIVERSITY
DENTON, TEXAS 76204

COLLEGE OF NUTRITION, TEXTILES, AND HUMAN DEVELOPMENT

DEPARTMENT OF CHILD DEVELOPMENT AND FAMILY LIVING

July, 1981

Dear Parents:

Amniocentesis is a procedure through which doctors can discover the chromosomal structure of a fetus at only 20 weeks of age. Also revealed during an amniocentesis is the sex of the unborn child. Although currently used to screen for genetic abnormalities, there is concern that there may be an increasing use of this procedure for the sole purpose of determining the sex of the fetus. Second trimester abortion based on the results of this information thus serves as a method of choosing the sex of one's child. This advance in technology raises many ethical, legal, and moral issues, some of which I am investigating in my research as a graduate student at Texas Woman's University.

In order to learn something about the attitudes of medical personnel towards amniocentesis as a method of choosing the sex of one's child, I would like to ask you to fill out the attached questionnaire. Please return it within the week to

the box in the reception area at TMC Child Care Center

Your answers are anonymous and confidential, as you are asked not to put your name on the questionnaire. I am not interested in how you think you should answer the questions, but in how you honestly feel about the issues raised. Please do not hesitate to contact me if you have any problems or comments. You may also write any comments (positive or negative) on the back of the questionnaire.

I am grateful for your participation in this study. By your cooperation, we may gain greater insight into the opinions and attitudes of the medical community itself. Those in the medical field must be sure of their own feelings and biases before attempting to teach, inform, and advise others on this question of sex selection.

Sincerely yours,

Katherine A. Reeves

Katherine A. Reeves
797-1976, extension 209

NO MEDICAL SERVICE OR COMPENSATION IS PROVIDED TO SUBJECTS BY THE UNIVERSITY AS A RESULT OF INJURY FROM PARTICIPATION IN RESEARCH

I UNDERSTAND THAT MY RETURN OF THIS QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH

DENTON CAMPUS
BOX 23975 TWU STATION
DENTON, TX 76204
(817) 387-2921, 382-5441,
382-1574, 383-1767

INWOOD CAMPUS
1810 INWOOD ROAD
DALLAS, TX 75235
(214) 631-3713

HOUSTON CENTER
1130 M.D. ANDERSON BLVD.
HOUSTON, TX 77030
(713) 792-7911

ATTITUDES TOWARDS SEX PREDETERMINATION
THROUGH AMNIOCENTESIS

For each item below please indicate the degree to which you agree or disagree by circling the response which best describes your feeling. The response key is as follows:

Strongly Agree.....circle letters "SA"
Agree.....circle letter "A"
Undecided.....circle letter "U"
Disagree.....circle letter "D"
Strongly Disagree.....circle letters "SD"

Please do not fill in the blanks at the extreme left of the page. These are for the purpose of coding.

____ 1. If I could choose the sex of my unborn child, I would do so.
SA A U D SD

____ 2. The sex of the fetus should remain unknown until the baby is born.
SA A U D SD

____ 3. If others want to choose the sex of their unborn child in whatever way, that is all right with me.
SA A U D SD

____ 4. I would not consider using any method of sex predetermination.
SA A U D SD

____ 5. No one should be allowed to choose the sex of their children.
SA A U D SD

____ 6. Abortion for any reason is immoral.
SA A U D SD

____ 7. Abortion based only on the sex of the child is immoral.
SA A U D SD

____ 8. I feel it is acceptable to abort on the basis of the sex of the child.
SA A U D SD

____ 9. A woman has a right to an abortion, whatever the reason.

SA A U D SD

____10. I would abort on the basis of the sex of the child.

SA A U D SD

____11. It is acceptable to me if others want to abort on on the basis of the sex of the child.

SA A U D SD

____12. I would not use amniocentesis and early abortion as a method of choosing the sex of my child.

SA A U D SD

Please answer the questions on the next page.

What is your sex? _____M _____F

Are you married? _____YES _____NO

How many children do you have? _____

What are their ages? _____

What are their sexes? _____

What is your occupation?

_____Physician

_____Ph.D.

_____Nurse

_____Technician

_____Aide

_____Orderly

_____Secretary

_____O.T. or P.T.

_____Administrative

_____Ward Clerk

_____Housekeeping/Maintenance

_____Student

_____Other (Please Specify) _____

What is your ethnic background? _____

Thank you for your participation in this study.

APPENDIX B

SOURCES OF CONSTRUCTS

	Source in Literature							
	1	2	3	4	5	6	7	8
Construct								
Use of medical personnel	X	X						
Use of married subjects	X	X	X	X	X	X		
Use of subjects with children	X	X	X	X	X	X		
Asking number of children of subjects		X						
Asking for occupation within medical field				X				
Asking tolerance for others' actions			X	X				
Use of Likert-type scale			X					
Acceptability of abortion				X			X	X
Acceptability of sex-choice methods	X	X	X	X	X		X	X
Acceptability of amniocentesis plus abortion for sex choice				X			X	X

SOURCES OF CONSTRUCTS (CONT.)

Key

1 - Fidell et. al., 1979

2 - Markle & Nam, 1971

3 - Matteson & Terranova, 1977

4 - Rosenzweig & Adelman, 1976

5 - Westoff & Rindfuss, 1974

6 - Cutright, Belt, & Scanzoni, 1974

7 - "Amniocentesis and abortion for sex choice," 1980

8 - Goldman, 1980

APPENDIX C

ATTITUDES TOWARDS SEX PREDETERMINATION THROUGH AMNIOCENTESIS

SCORING KEY

____ 1. If I could choose the sex of my unborn child, I would do so.

SA	A	U	D	SD
5	4	3	2	1

____ 2. The sex of the fetus should remain unknown until the baby is born.

SA	A	U	D	SD
1	2	3	4	5

____ 3. If others want to choose the sex of their unborn child in whatever way, that is all right with me.

SA	A	U	D	SD
5	4	3	2	1

____ 4. I would not consider using any method of sex predetermination.

SA	A	U	D	SD
1	2	3	4	5

____ 5. No one should be allowed to choose the sex of their children.

SA	A	U	D	SD
1	2	3	4	5

____ 6. Abortion for any reason is immoral.

SA	A	U	D	SD
1	2	3	4	5

____ 7. Abortion based only on the sex of the child is immoral.

SA	A	U	D	SD
1	2	3	4	5

____ 8. I feel it is acceptable to abort on the basis of the sex of the child.

SA	A	U	D	SD
5	4	3	2	1

9. A woman has a right to an abortion, whatever the reason.

SA	A	U	D	SD
5	4	3	2	1

____10. I would abort on the basis of the sex of the child.

SA	A	U	D	SD
5	4	3	2	1

____11. It is acceptable to me if others want to abort on the basis of the sex of the child.

SA	A	U	D	SD
5	4	3	2	1

____12. I would not use amniocentesis and early abortion as a method of choosing the sex of my child.

SA	A	U	D	SD
1	2	3	4	5

APPENDIX D

DEMOGRAPHIC CODING KEY

Sex

Male = 1

Female = 2

Marital Status

Married = 1

Unmarried = 2

Occupation

Physician = 1

Ph.D. = 2

Nurse = 3

Technician = 4

Aide = 5

Orderly = 6

Secretary = 7

Occupational or Physical Therapist = 8

Administrator = 9

Ward Clerk = 10

Housekeeping or Maintenance = 11

Student = 12

Other = 13

Ethnic Background

Caucasian = 1

Black = 2

Oriental = 3

Not Mentioned = 4

Number of Children

One = 1

Two = 2

Ages and sexes of children were not coded, as these data were used for descriptive purposes only.

APPENDIX E

COMMENTS FROM SUBJECTS

"If I could predetermine the sex of a child prior to conception or implantation I would. Abortion would be out of the question."

"I can only accept abortion as a life-saving measure for the mother or in the case of a lethal anomaly (anencephaly, hydrocephaly, holoprosencephaly, etc.)."

"Since legalization of abortion, voluntary terminations have become convenience measures more than anything else. As a woman I am angered and ashamed about the abuse of this procedure."

"After having much difficulty with pregnancies and coming from a family with a retarded sibling, I would consider abortion in a case of severe deformity, mental retardation or other severe abnormality. For the reason of sex determination it's absolutely ridiculous. How can you refuse a child's right to live just because of his/her sex?"

"I am of the belief that from the moment of conception there is a living being who has the right to a chance of life. If the child is unwanted, there are millions of couples not fortunate enough to be able to have their own children."

"The idea of abortion for sex preference is simply murder."

"For a problem, a severe problem, there may be a reason to abort. For sex preference there is no reason. The fetus is healthy."

"It would be nice to choose the sex of my child, but not at the cost of my unborn child's life. I totally agree with abortion, but not for that purpose."

"As for knowing the sex of one's child before birth, it should be left up to the individual, but it does have certain advantages. One would know exactly what to buy and be totally prepared."

APPENDIX F

Baylor College of Medicine
ROBERT J. KLEBERG, JR. CENTER FOR HUMAN GENETICS

Clinic Address:
Birth Defects-Genetics Clinic
Texas Children's Hospital
Houston, Texas 77030
713-~~524-3281~~ 791-3261

August 12, 1981

TO WHOM IT MAY CONCERN:

Re: Thesis prospectus of Kathryn A. Reeves

Kathryn Reeves has asked me to read and review the initial preparation of her master's thesis. I have done so, and we have had an opportunity to meet and discuss the content, the mechanism of presentation, and several of the issues generated by her initial effort. At her request, this is to document my review and our subsequent discussion.

The paper deals with a controversial and potentially abhorrent topic, yet one which is not original. Requests for sex selection by amniocentesis have been received at Baylor College of Medicine. Yet I feel it is essential that a clear distinction be made between sex selection before and after conception. In reality, amniocentesis and subsequent late abortion is not predetermination, in that the sex has long since been established, but rather sex selection. Whereas this semantic distinction may seem unimportant, it is the essence of the clinical activities from the genetic perspective. I feel this distinction needs to result in a change in the title, as well as some modification of the questionnaire so as to distinguish between concerns regarding sex selection as a concept (which is not yet available before conception) and the use of amniocentesis in late abortion to selectively choose the desired sex.

The paper does present a basic understanding of genetic amniocentesis, yet several points, again semantic at times, demonstrate a lack of understanding of some of the basic genetic concepts. Recognizing that a novice to the field relies on the papers and word choices of those authors, important nuances can create and perpetuate the misconceptions that the lay public has with respect to the techniques and usage of genetic tests. Comments such as, "Amniocentesis...allows examination of the genetic pattern..." reinforces the common misunderstanding of the limitations of identification of the chromosome analysis (versus single-gene identification). It is also incorrect to combine a single-gene biochemical disorder in a paragraph devoted to the detection of chromosomal abnormalities, such as Down syndrome, in that these two diseases are prenatally diagnosed in very different ways.

(Continued)

TO WHOM IT MAY CONCERN
Re: Thesis prospectus of Kathryn A. Reeves
August 6, 1981
Page 2

Kathryn has clearly identified a topic which generates considerable anecdotal emotional response. It has not, however, been well assessed, in that many of the studies have utilized as their study population college students and have combined sex selection before and after conception as one issue. The ideas and interests that have been displayed in the preparation of this work are certainly appropriate. We did discuss the choice of the audience to be assessed, in that whereas they may have some connection with the field of medicine, by and large the general body of knowledge would often not represent one much greater than that of the general population. I do feel, however, that a considerable amount of appropriate effort has been expended on the preparation and would be very interested in the follow-up results. Should anyone have any additional questions or concerns regarding this letter, please feel free to contact me at the above location.

Vickie L. Venne, M.S.
Genetic Counselor

VLV;ms

D: 7/30
T: 8/6

APPENDIX G

RELATED LITERATURE

Birth Order

Altus, W. Birth order and its sequelae. Science, 1966, 151, 44-49.

Arrowood, A., & Amaroso, D. Social comparison and ordinal position. Journal of Personality and Social Psychology, 1965, 2, 101-104.

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Schwab, M.R., & Lundgren, D.C. Birth order, perceived appraisals by significant others, and self-esteem. Psychological Reports, 1978, 43, 443-455.

Child Abuse

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Kinard, E.M. The psychological consequences of abuse for the children. The Journal of Social Issues, 1979, 35, 82-126.

Shengold, L. Assault on a child's individuality: A kind of soul murder. Psychoanalytic Quarterly, 1978, 47, 419-424.

Family Structure and Relationships

Nuttall, E.V., & Nuttall, R.L. Child-spacing effects on intelligence, personality, and social competence. The Journal of Psychology, 1979, 102, 3-13.

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Williamson, N.E. Boys or girls? Parents' preferences and sex control. Population Bulletin, 1978, 33, 1-35.

Parental Expectations

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Sex Roles

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Societal Trends

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Coale, A.J. The history of human population. Scientific American, 1974, 231, 40.

APPENDIX H

TEXAS WOMAN'S UNIVERSITY
HOUSTON CAMPUS
HUMAN RESEARCH REVIEW COMMITTEE
REPORT

STUDENT'S NAME Katherine A. Reeves

PROPOSAL TITLE Attitudes of Medical Personnel Towards Predetermination of Sex of Offspring Through Amniocentesis

COMMENTS:

DATE: 6/8/81

Disapprove approve

Disapprove approve

Disapprove approve

Disapprove approve

kw

APPENDIX I

The University of Texas System Cancer Center
M. D. Anderson Hospital and Tumor Institute
Texas Medical Center • 6723 Bertner Avenue • Houston, Texas 77030

Office of the President

MEMORANDUM

TO: Marjorie Whitehead
Director TMC Child Care Center

FROM: Renilda Hilkemeyer, R.N., B.S.

SUBJECT: Thesis Prospectus of Katherine Reeves entitled "Attitudes of Medical Personnel Towards Predetermination of Sex of Offspring Through Amniocentesis"

DATE: June 18, 1981

CRITIQUE

The title of this thesis on the Agency Permission sheet, the description (p. 2) and the questionnaire attached have a major discrepancy. Not only is the investigator wishing to determine attitude toward predetermination of sex through amniocentesis but in the description she is interested in attitude toward early abortion as a method to changing the sex of one's children. This needs to be clarified in title and letter to parents.

With this change and approval from the Human Subjects Committee, I recommend approval.

cc: Jane Brandenberger
RH:ra

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NUTRITION, TEXTILES, AND HUMAN DEVELOPMENT
HOUSTON CENTER

1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030

AGENCY PERMISSION FOR CONDUCTING STUDY

The Texas Medical Center Day Care

grants to Katherine A. Reeves
a student enrolled in the Department of Nutrition and Food Science at Texas Woman's University, the privilege of its facilities in order to study the following problem:

Attitudes towards determination of sex of offspring through amniocentesis

The conditions mutually agreed upon are as follows: (to be completed by the Agency Representative)

1. The agency (may) ~~(may not)~~ be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) ~~(may not)~~ be identified in the final report.
3. The agency (wants) ~~(does not want)~~ a conference with the student when the report is completed. or a copy of report
4. The agency is (willing) ~~(unwilling)~~ to allow the completed report to be circulated through interlibrary loan.
5. Other As indicated on attached memorandum

Date: 6/18/81

Linda Hilkemeyer
Signature of Agency Representative

Signature of Student

Signature of Research Committee Chairman, TWU Faculty Member

Number of forms required: one completed original and three duplicated copies (with signatures).
Distribution: one copy each to student (original); Agency, Dean of Graduate School - (to accompany prospectus); Dept. of NGS, TWU-Houston Center.

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Elliot, J. Abortion for 'wrong' fetal sex: an ethical-legal dilemma. Journal of the American Medical Association, 1979, 242, 1455-1456.

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Schmickel, R. Determination of sex by amniocentesis for the purpose of sex selection. Progress in Clinical and Biological Research, 1980, 38, 95-101.

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