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CONFRONTING THE DILEMMAS OF REPRODUCTIVE CHOICE:
THE PROCESS OF SEX PRESELECTION

by

Nan Paulsen Chico

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Sociology

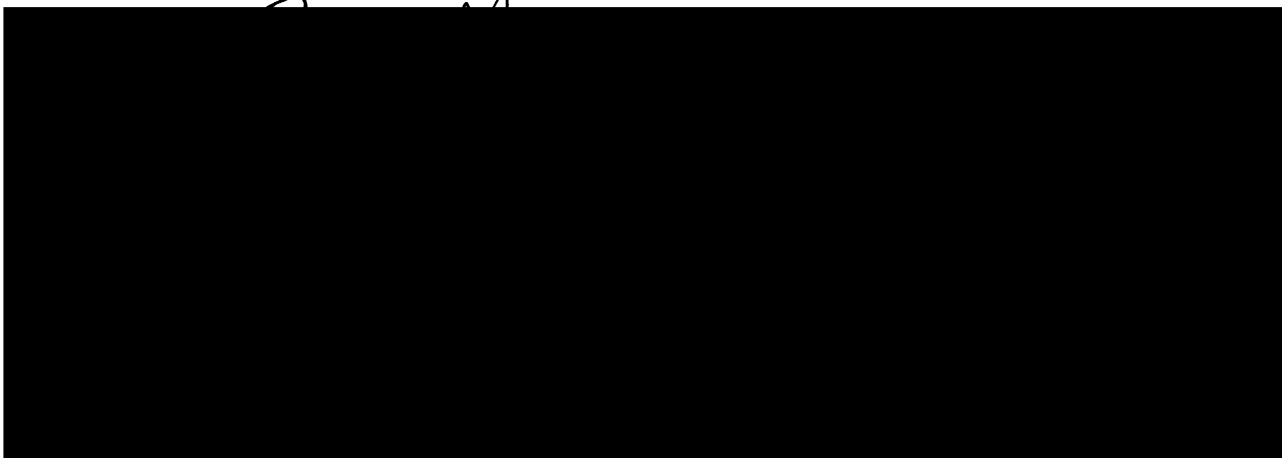
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For
Shirley and Margo
mentors, friends, and now colleagues --
without whom I never would have gotten this far!

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v

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CONFRONTING THE DILEMMAS OF REPRODUCTIVE CHOICE:
THE PROCESS OF SEX PRESELECTION

Nan Paulsen Chico

ABSTRACT

Characteristics of prospective users of sex preselection (the attempt to choose a child of the desired sex prior to conception) are described and analyzed using both quantitative and qualitative methods. This combination of methods enabled potential weaknesses in each to be compensated for by the strengths of the other. Each allowed distinct discoveries, and the integration of methods increased both the reliability and validity of the findings. The analytic focus is guided by symbolic interactionism.

The quantitative content analysis of 2,505 letters from couples inquiring about the Ericsson technique (which was the only method available at the time that had clinical verification of success) revealed that the overwhelming majority of these couples already had an average of two same-sex children in their present families and were primarily interested in choosing the sex of their last-born. These letters spanned a fifteen-year period (1973-1987). Although early inquiries were predominantly from parents of daughters who now wanted a son, the technique at that time only offered male selection. In later years, when female selection became available, couples were as likely to be seeking daughters as sons.

Couples with no children, with one, two or three, and four or more children were analyzed separately, as were couples with a sex-linked genetic disease. Couples with one or more children almost invariably wanted a child of the sex they did not yet have. Those with a sex-linked genetic disease generally were seeking daughters. Only 1.4% of these couples were seeking a first-born son, contrary to expectations based on an extensive review of the literature on sex preferences.

Qualitative analysis using the grounded theory method focussed on the context and conditions within which sex preferences emerged, and analyzed the strategies and tactics couples used in the process of translating their preferences into action. Various constraints, choices, and dilemmas were encountered by couples at each of the steps along the path towards sex preselection, which included physiological considerations (i.e., low fertility, problem pregnancies, previous sterilization), resource management (time, money, and distance to the nearest Center that offered the Ericsson technique), and weighing the odds (the method offered an 80 to 85% chance of success, but not a certainty -- couples had to come to terms with the likelihood of having the "wrong" sex). A framework for analyzing other clinically assisted elective procedures is also proposed and discussed.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

This dissertation is a study of couples interested in **sex** preselection. Content analysis and grounded theory **methodology** were used for quantitative and qualitative **analysis** of the same data set, which consisted of 2,505 **letters** written over a fifteen-year period by couples who **were** inquiring into the Ericsson method of sex preselection **[1]**. A review of the medical research literature showed **that** at the time of this study the Ericsson method was the **only** one for which there was clinical evidence of improving **couples'** chances of conceiving a child of the sex they **preferred**. This method concentrates, through a process of **semen** filtration, 75-80% of the husband's male-producing **sperm**, which are then artificially inseminated into the **wife**. The method is available only through licensed **participants**, and must be performed by trained specialists -- it is **not** an "at home" method. As of December, 1987 (when data **co/lection** for this project ended), 536 sex preselected

children had been born using this method, with a success rate of about 80% (i.e., four in five couples did have a child of the sex they had hoped for, although one in five did not).

A review of the social science literature on sex preferences revealed that many people in the United States had what is referred to as a "weak" son preference, in that they preferred a first-born son, or a son as an only child, or preferred more sons than daughters in an odd-numbered family (3, 5, etc.). Other people stated that they had no preference for the sex of their intended offspring. Many who did state a preference, preferred a mix (at least one child of each sex in the completed family) or a balance (equal numbers of both sexes in an even-numbered family (i.e., 2, 4, etc.)). In contrast, very few people mentioned a preference for first-born daughters or for more daughters than sons. This son preference has been a continuing source of concern for many demographers, other social scientists, feminists, bioethicists, etc., who have generally assumed that an easy, inexpensive, and highly effective method of sex preselection would soon be available. If available and widely used, such a method could lead to a dramatic shift in the sex ratio, with possibly harmful consequences to both individuals and their families, as well as to the rest of society [2].

A. MAJOR FINDINGS

Nearly ninety percent of the couples (N=2,220) in this study already had from one to seven children of one sex (with a mean of 2.1 children per couple). These couples were primarily interested in ending their childbearing by selecting the sex of their lastborn child, which they wanted to be the opposite sex of what they now had. Of the 199 couples (8.2% of the total) who said they had no children yet, only 36 (1.4% of the total) were inquiring about sex preselection for a firstborn son. The Ericsson method originally selected only for boys, so most requests from couples in the early years were for sons. However, a variation of the method that selected for girls became available in 1984; in the last four years of the study (1984 through 1987), inquiries about female selection outnumbered requests for males in three of the four years. Only 81 couples (3.4% of the total) mentioned a sex-linked genetic disease as a reason for sex preselection. The majority of the latter were couples in which the wife was a suspected carrier; all were seeking daughters.

In addition to testing hypotheses derived from the literature on sex preferences (i.e., discovering whether, and to what degree, a son preference existed among various subsets of these couples), this study describes and analyzes the few demographic characteristics of the group that were available (number and sex of present children, ages and occupations of

husband or wife); examines the reasons for, considerations about, and remarks accompanying their sex preselection inquiries; and delineates the complexities which characterized the decision-making process that couples experienced when confronting the dilemmas of sex preselection using this particular method. An understanding of this complexity partially explains the findings in this study, which are somewhat at odds with what the literature had predicted.

The combination of quantitative and qualitative methodologies used for coding and analysis enabled potential weaknesses in each method to be compensated for by the strengths of the other. Each captured valuable and valid information, each allowed for discovery of something that the other did not, and the integration of both provided a kind of rigor that neither could have accomplished alone. The application of both these methods and resultant analysis using each are discussed and illustrated in detail.

B. DEFINITIONAL DISTINCTIONS

1. Sex and Gender

The word "sex" is used by social scientists to refer to the distinction between male and female physiology. The term "gender" is reserved for the social aspects that are learned in any given culture that define and explain the differences between "masculine" and "feminine" behaviors, personalities, and other social attributes. Sex is in-

riant; all societies and cultures recognize that there are two sexes, and at the moment of birth anyone in that society can correctly identify which sex has newly arrived [3]. Gender differences are socially constructed, transmitted to, and learned by, members of the social group. Certain behaviors or characteristics in one society are believed to be "masculine," while in other societies the same cluster of traits may be regarded as "feminine." In yet other societies that same cluster may be broken down into smaller clusters, some of which are defined as masculine, and others as feminine. This is why the announcement "It's a boy" or "It's a girl" is so fateful; once that child's sex is ascertained, cultural and social shaping of gender will begin [4].

When people speak about preferences for sex of their offspring, they do so in terms of "male" or "female," or "son" or "daughter," or "boy" or "girl," and they are actually considering the gender distinctions that their society provides. Sons or daughters are desired for their perceived social differences, not solely for their anatomical configuration.

Throughout this dissertation the word "sex" is used, particularly in conjunction with sex preference or sex preselection, but this should really be read as "gender." I have opted to do this to be consistent with the demographic and clinical literature I have reviewed, which overwhelmingly use "sex" to refer to these social characteristics.

2. Selection and Preselection

There are important technical and analytic distinctions among sex selection, sex preselection, and sex determination. Sex determination refers to identifying the sex of an already existing fetus [5]. Sex selection, after this determination, is the decision to then abort the fetus or not, depending on the parental preference for one sex over the other. Sex preselection refers to attempts to increase the likelihood of one or the other sex being conceived. While there are obviously important ethical and moral differences between pre- and post-conception decisions, in this dissertation I limit the discussion to pre-conception techniques and some of their social and ethical ramifications.

C. THEORETICAL PERSPECTIVE

The basic sociological perspective focuses on patterns of interaction among and between groups of people. This focus on social interactions also takes into account that each and every participant will enter into the interaction with a unique biography and background. Most of what is important in these social interactions will be based on learned and shared "socially constructed reality" (Berger and Luckmann 1966; Blumer 1969). That is, for most human beings, the things that are personally dearest to them -- their beliefs and ideologies, their opinions and attitudes, the norms and values that guide their behavior, their goals

and aspirations -- have largely been created by previous social actions of others (what we sometimes call "tradition" or "social knowledge" or "culture").

1. Symbolic Interaction

From the point of view of a symbolic interactionist, what is most interesting to study is this process by which social reality is created, maintained, and changed. We take as a starting point that most of what human beings do in interactions -- particularly in those interactions with "significant others" such as parents and other close relatives, friends and peers, spouses and lovers -- is based on the meanings that those interactions have for them. These meanings are not inherent in the activities themselves, but have been socially constructed and learned. People act in accordance with a logic based on these meanings, although they do not always act logically or rationally -- at least from the point of view of someone with a different perspective. We would expect that people who have come to believe that having a son or daughter is very important to them would act in ways that are consistent with that belief, and would do whatever they could to achieve that goal, unless competing goals intervene, or barriers to the goal cannot be surmounted -- or they simply change their minds.

Many different socially constructed realities were evident in these letters. Couples spoke of the "incompleteness" of their present families, even when the families were

quite large -- and from a different perspective, perhaps "overcomplete." Others quite often used phrases such as "Of course we are interested in sex preselection" (or "Obviously..," "Naturally..," "So you can see why..,") after having mentioned having two daughters or sons -- although from the perspective of other parents, these same-sex children could have been exactly what was wanted. Another commonly shared reality had to do with misunderstandings of probabilities; two boys in a row "meant" that another was sure to follow -- but to others meant that a girl was now "due." In this study I examine some commonly constructed notions of what it meant to have a son or a daughter -- and more poignantly, what it meant to not be able to have one.

D. GOALS AND SIGNIFICANCE

1. Substantive Focus

My primary concern was to add to the substantive knowledge of sex preferences by analyzing a data source that afforded the opportunity to link attitudes (preference for a child of a particular sex) with behavior (actually using a sex preselection method). Although social scientists have done a great deal of attitudinal research on many different subjects, there is considerable evidence that attitudes themselves neither necessarily -- nor often -- predict behavior. A better predictor of behavior comes from measuring intentions. In this study I attempted to discover the kinds

of contexts, considerations, interactions, and consequences that were linked to intentions to use a sex preselection method.

2. Methodological Focus

With sex preselection as a primary focus, a second focus of this dissertation was on research methodology. While it is both customary and necessary to include details of data collection and analysis in any presentation of original research, I elaborate on methodology somewhat more than is usual. There were three reasons for doing so. First, I used a combination of methods -- content analysis and grounded theory analysis -- that had not been described elsewhere in the methods literature. For this reason alone it seemed important to explain how each of these methods worked separately, why and how I attempted to combine them, and to particularly point out both successes and failures in the process of applying them simultaneously to the same data.

Second, I had some initial reservations about the data set I was using, which consisted of unsolicited letters from couples inquiring about a particular sex preselection method. While some were quite long, others were very short -- consisting of only a sentence or two -- and they had alternately flooded or trickled in over a fifteen-year period. Although I was convinced that there was very rich material in these letters I was, at least initially, not convinced that they would lend themselves to rigorous analysis or that

any findings from them would be useful. My assessment now is that these letters have indeed yielded valuable information about the difficulties of making reproductive choices -- choices which are not limited to only sex preselection. I have carefully documented the process of data coding and analysis in the belief that other researchers who followed these same steps would come to the same conclusion.

Third, I believe that the research process itself -- indeed, any process of inquiry -- is something that needs to be the focus of more conscious self-reflection on the part of those who engage in it. Not only should researchers "tell the story" of their research efforts with more detail and honesty than most now do, but they should do so in a way that will allow themselves and others to have enough data with which to study this important line of work. Ideally, methodological and analytic difficulties should be identified and addressed as they are met and dealt with, and not glossed over or ignored in the final publication. Scientific inquiry is probably the major, if not the most important, industry of modern times. As such, we would all benefit from knowing more about the real paths that people follow in the process of that inquiry.

E. CHAPTER OUTLINE

In Chapter 2 -- Review of the Literature, I begin by discussing folk methods (some of which have been used for centuries) that were believed to produce a child of one or the other sex and note that most of these have been used in an effort to produce sons. I then review, discuss, and critique the social science literature on sex preferences of Americans, noting that while most studies reveal a definite, if weak, son preference, they also indicate that most people with preferences wanted at least one child of each sex in their completed families. I also discuss the few studies the literature reported that asked about people's attitudes towards using sex preselection methods, most of which assumed that an effective, "at home" method would soon be available.

Last, I review the scientific literature on sex preselection methods and note that the Ericsson method, although controversial, was the only one that at the time of this study had been substantiated by clinical evidence.

In Chapter 3 -- Data and Methods, I first describe my data and its source (2,505 letters written over a 15-year period). I then discuss the two methods I use in data description and analysis. I next list a series of hypotheses, derived from the literature review, to be tested with the quantitative content analysis. I describe the

content analysis coding scheme I devised to obtain frequency counts for determining the percentages of couples who:

Had no children yet and who wanted to preselect for a first-born, or only, son or a daughter;

Already had one or more children (and what the sexes of the children they had and the ones that they wanted were);

Gave specific reasons for having preferences for the sex of their offspring;

Mentioned considerations or reservations about actually using a sex preselection method themselves;

And/or offered various other remarks about sex preselection.

I then discuss how qualitative grounded theory methodology would be used in an attempt to illuminate the social and social-psychological contexts and conditions that contributed to a sex preference in the first place, and to discover the actual process that people followed in deciding whether or not to act on the basis of their preferences.

Chapter 4 -- Findings from Content Analysis, discusses the basic demographic data obtainable from these letters (present family size and sex composition, and ages and occupations of the couple) and tabulates frequencies of the reasons for, and the considerations and remarks about, using sex preselection. While most of the early requests were for male selection, as soon as a method became available for female selection the requests evened out. It became clear that already having children of one sex was the single most

salient factor in predicting who would want to actually use a sex preselection method.

Chapter 5 -- Profiles of Families Who Wish to Sex Preselect, takes the content analysis a step further by examining specific subgroups: parents with no children, one child, two or three children, four or more children, and parents who wanted to sex preselect because of a sex-linked genetic problem. Couples with no children, representing 7.9% of the total, represented the youngest group of wives, but the second oldest group of husbands, since many of the latter were in a second marriage. These couples were also the most likely to report a genetic problem, to give a specific reason for sex preselection, and to have a partner who had been sterilized. The one-child couple, the second largest sub-group (with 13.6% of the total), was much more likely than any of the others to indicate the intention to have only one more child. Families with two or three children, by far the largest group (representing 66.9% of the total), were the least likely to offer a reason for wanting sex preselection. The clear inference here is that having had two or three same sex children was itself the reason. Families with four or more children, representing 8.1% of the total, were the most likely to have had children of both sexes, though one sex was in the minority and another child of that sex was desired for "balance." Couples in this group, not surprisingly, had the highest average age and were the most likely to mention mother's age or physiology

as a limiting factor. These couples were also from twice to three times more likely than other groups to say they were "desperate." Couples with sex-linked genetic problems constituted 3.2% of the total, and most were seeking daughters. In this chapter I also present results of the hypothesis testing.

In Chapter 6 -- Major Emergent Categories from Open Coding, I discuss the themes that emerged from the qualitative grounded theory coding. Some of these reflected the contexts and conditions within which sex preferences were likely to occur. In addition to sex preselection, couples attempted to control other reproductive choices such as numbers and spacing of children by means of contraception, abortion, sterilization and even sterilization reversals, and attempted to reduce infertility via donor and/or in vitro insemination. A prevailing theme was that of limits. Internal limits were set and sometimes altered, such as tolerance for numbers of children of one sex, or total number of children wanted. Other limits were of a more external nature, and commonly included limits of time, energy, money and other resources needed for participation in this method. Other perceived limits included those of physiology, as well as limitations brought about by the method itself or by the centers who offered it.

Other themes represented strategies and tactics used in translating sex preferences into action, such as help- and

information-seeking, negotiation with significant others, and considering the option of adoption.

In Chapter 7 -- Dilemmas on the Path from Sex Preference to Sex Preselection, I trace the path that began with a parental sex preference; went through the information seeking process (discovering that sex preselection was available, writing for information about the nearest center that offered it, then contacting personnel for details); and ended with the decision-making process. This latter step involved a calculus of resources and conditions which included time, money, effort, emotions, risk, negotiation, compromise, uncertainty, and knowledge. Dilemmas occurred when spouses had differing degrees of desire for a sex preselected child; when a family doctor or other "expert" was not helpful or was hostile to the idea of sex preselection; when physiological limitations foreclosed certain options; and when competing methods of, and conflicting claims about, sex preselection were encountered.

Chapter 8 -- Conclusions and Implications, begins with a summary of the quantitative and qualitative findings, followed by a discussion of the interplay of methods. I conclude with a framework for analyzing other elective medical interventions and note questions raised by the analysis that point to directions for further research.

REFERENCES

APPENDIX A -- CONTENT ANALYSIS, contains the details and evolution of the coding scheme, as well as unrecoded frequency tables.

APPENDIX B -- THE ERICSSON SEX PRESELECTION METHOD, gives the clinical procedures for sex preselection and information from several of the centers which offered the method.

APPENDIX C -- GLOSSARY, provides a definition of the medical and technical terms used; while each term is defined when it first appears, all such terms are located here for easy reference.

[1] Details about this method are provided in Appendix B.

[2] I note here that in the fifteen years that this study spans, more than 52,000,000 children were born in the U.S., only 500 of which (i.e., fewer than 1 in 100,000) were conceived using the Ericsson method (US Dept. of Health and Human Services, 1986 and 1988).

[3] With the rare exception of newborns who have anomalous genital characteristics. In many of these cases, sex is surgically determined (regardless of the genetic sex of the infant) and the child is then successfully raised to be appropriately masculine or feminine.

[4] There is evidence that knowing the child's sex prenatally can begin this social shaping even earlier (see Rothman, 1986).

[5] This determination of sex is usually made through chromosome examination or sonography.

CHAPTER 2

REVIEW OF THE LITERATURE

A. INTRODUCTION

In this chapter I first briefly summarize major folk practices of sex preselection and then review the social science literature on sex preferences, focusing particularly on recent studies which have not appeared in previous reviews of the literature. I then discuss and critique the social science, feminist, and bioethical literatures which address possible consequences of the widespread use of sex preselection. Last, I review the clinical literature on sex preselection methods. With few exceptions, the clinical literature per se does not find its way into sociological studies of sex preferences or attitudes towards sex preselection. Sometimes the latest findings are reported, but in a relatively uncritical way. The implications of this are that unconfirmed reports of new sex preselection claims are often given as much weight as methods that have had years of clinical testing.

1. Folk Methods of Sex Preselection

From earliest historic times, people have been vitally concerned with ensuring the birth of sons. Sons have been valued for many reasons -- to continue the family line, for their economic and social worth, and because they often have been the only ones who can perform certain religious rituals. While daughters, too, have a certain worth for families, their absence in most cultures is not commonly viewed as socially disadvantageous as is the failure to produce sons.

Ancient Chinese, Greek, and Egyptian manuscripts, as well as present-day folk practices, offer a wealth of proposed techniques to aid in producing sons. These include diet, surgery, positions for and activities during intercourse, and various forms of sympathetic magic -- some quite painful for the mother-to-be. Women trying to conceive (or those already pregnant) [1] were told to eat red meat or sour or bitter foods, or lots of salt and cheese for boys; for girls, drinking hissop and saffron in a glass of malaga after intercourse, and avoiding sweet foods was advised. The ancient Hebrews, Greeks, and the French nobles of the 1700's believed that since the right testicle produced males and the left produced females, [2] surgically removing the left testicle thus assured sons. A logically similar, but less drastic practice, was that of tying a string around the

right testicle for a son (Markle and Nam 1971; Rinehart 1975; Pogrebin 1981; Glass and Ericsson 1980).

Hippocrates taught that female children developed in the left uterine horn, males in the right. This led to Aristotle's advice to women to "think male" and lie on their right sides after intercourse to increase the amount of "generative heat" that produced male children. Women's use of sympathetic magic included letting a small boy step on her hands or sit on her lap on her wedding day, having male children in the wedding party (source of the custom of having a very young boy as a ring bearer), sleeping with a small boy on her wedding eve, wearing male clothing to bed on her wedding night, and pinching her husband's right testicle before intercourse. -Couples wanting sons have been variously told to do the following (though not all at once): to have intercourse in dry weather, facing north or placing the bed in a north-south direction, on a night with a full moon, during certain phases of the moon and tides, while reciting chants, after a good nut harvest, and on even days of the menstrual cycle. Men could wear their boots to bed, get drunk, bite their wife's right ear, take an ax to bed, and hang their pants on the right side of the bedpost (Rinehart 1975; Pogrebin 1981; Bennett 1983b). Other theories of sex determination included the belief that the sex of the child would be the same as that of the "most heavily sexed" parent, or that it was determined by the direction of the wind at the time of intercourse (the north wind for males,

the south wind for females). This last belief persisted until the 1600's (Markle and Nam 1971).

In Korea, where son preference has always been very strong, rituals designed to bring sons were -- and still are -- very common. One previously common technique, navel cautery, was described in Williamson (1976a:94) as follows:

According to this custom blue salts and musk powder were mixed into wheat flour dough, which then was placed over the navel of a woman from whom a son was desired and cauterized with salt moxa...Sometimes cautery was carried to an extreme by zealous husbands who believed that the more salt burned, so much the better. Instead of burning the moxa on the navel, the husband brought a red-hot iron rod against the navel of his wife and held it there while the wife screamed in unbearable pain.

Usually two or three hundred cauteries per pregnancy were prescribed for these women. Korean practices today (Williamson 1976a:94) include "naming girls with boys' names in hope that this will bring a boy next time, giving girls names which indicate disappointment...and stealing objects from households with sons."

While many of these methods seem extreme, improbable, and even quite bizarre by today's standards, it must be pointed out that, unlike remedies for infertility or methods for winning the lottery, any method of sex preselection will be successful at least 50% of the time [3]. Those who feel certain that a particular method works will, of course, claim validation when the results are as desired. If, on the other hand, the "wrong" sex comes along, advocates can

always claim that the method was not properly used. It is also important to note that attempts to ensure the desired sex of offspring have not been limited to actions before conception or birth, but have historically included adopting out, selling (often into slavery), or killing infants of the unwanted sex -- usually female [4]. Currently there is much interest in new techniques of identifying fetal sex by means of amniocentesis or chorionic villi sampling [5] which, when combined with selective abortion, give a nearly 100% probability of getting the "right" sexed child.

2. Modern Methods of Sex Preselection

Modern day attempts at sex preselection are just as ambitious as earlier ones but have the advantage of being based on more clearly (though not yet completely) understood physiological models. While some recent research into sex preselection techniques also considers diet and positions for and activities during intercourse, most now centers on mechanically separating the male-bearing from the female-bearing sperm [6] followed by artificial insemination with the selected fraction of sperm. These clinical methods will be discussed in later sections.

B. THE SEX PREFERENCE LITERATURE

A review of the social science literature reveals a number of studies over the past three decades concerning sex preferences of offspring among Americans. Most of these

indicate that while parents want at least one child of each sex, there is also a "weak" preference for sons. That is, sons are preferred as firstborns and as only children, and in families of odd-numbered children (3, 5, etc.) are the preferred majority. Other studies attempt to correlate such preferences with actual fertility behavior, and many of these indicate that there is a tendency for people to base certain fertility decisions -- continuing, stopping or postponing childbearing -- on sex preferences. Given at least a weak son preference along with the apparent willingness to act on it, nearly all of these studies conclude that if and when accurate methods of sex preselection become available, they would be used by enough couples wanting sons such that the resulting impact on society as a whole could have fairly serious consequences.

Sociological studies of sex preferences in the United States began in the early 1930s and have continued with increasing sophistication in methods and modelling. Most early research efforts dealt with discovering if parents indeed had gender preferences for their future offspring, what these preferences were, if and how preferences might affect fertility rates, and why such preferences might be held. An underlying assumption was that science would inevitably make it possible for couples to easily and freely choose the sex of their future offspring prior to conception.

Recent research using more sophisticated statistical and methodological techniques have attempted to discover if and to what degree the sex ratio [7] might be affected by sex preselection and what the societal consequences might be if such a shift occurred. Feminists and ethicists have entered the debate with their own concerns. Meanwhile, reproductive scientists in biology and medicine continue to seek new methods of pre-conception sex choice for parents-to-be and to perfect existing techniques. Until recently, other than consideration of the possibility of eliminating sex-linked genetic defects [8], clinical research has evinced little awareness of the concerns expressed by critics of sex preselection -- social scientists, who fear the consequences of a shift in the sex ratio; feminists, who see the specter of sexism and reinforced sex role stereotypes; and bioethicists, who have a variety of concerns about the rights, privileges, social costs and benefits, and so forth that sex preselection raises [9].

1. Attitudinal and Behavioral Studies: Background and Methods

Attitudinal studies of sex preferences for offspring have aimed at discovering if parents-to-be do indeed have preferences for sons or daughters at any or all parities [10], what those preferences might be, and whether or not they would use a sex preselection method if one were to become available. A review of the sex preference literature reveals many such attitudinal studies, most of which used multiple-response indicators

(i.e., more than one question about sex preference was asked). Particularly striking is the dissimilarity among studies -- few researchers attempted replication by using a previous questionnaire or a similar sample, and with few exceptions, the same researcher often changed or modified instruments from one study to the next. There is thus no "standard" measurement technique for sex preferences, and we are left with a wide variety of questions, methods, and sample groups.

Since social scientists assume there is generally a causal linking of belief to attitude, attitude to intention, and intention to behavior, they measure attitudes in an attempt to predict behavior. Behavior, in turn, may provide new information which influences belief, and the process starts anew. There is, however, little actual evidence that such a systematic relationship between attitude and behavior does exist (Fishbein and Ajzen 1975). In the case of preference (an attitude) for the sex of offspring, the question of interest is whether, and when and how, such a sex preference leads to action -- to actually using a sex preselection method. Attitude studies are useful to the extent they demonstrate a link to behavior, since attitudes, opinions, beliefs, and predispositions that are not acted upon are of little theoretical (and practical) importance.

Behavioral studies of sex preferences attempt to discover whether couples do act upon their preferences when

considering a next pregnancy. Are parents of same-sexed children more likely to go on childbearing than those who have achieved a mix? Are parents of daughters more likely to do so than parents of sons? Do parents who have a son as a first- or second-born have smaller completed family sizes? Do birth intervals change depending on prior sex of offspring -- that is, do parents who did not get the wanted sex attempt the next pregnancy sooner than parents who did?

While attitudinal studies ask people directly about their sex preferences, behavioral studies are inferential in nature. In the latter case, aggregate data are gathered about number and sexes of children, and inferences to sex preference are made based on the numbers of parents who either stopped or continued childbearing after different sex compositions were obtained. Thus, when people are asked about their preferences, or about their past or intended behaviors, it is an attitudinal study. When aggregate data (usually from a secondary source) are used to infer past actions, it is considered to be a behavioral study, even though no direct observation of respondents is made.

2. Early Studies of Sex Preference of Offspring: 1931-1976

Since Winston's (1931) early work, researchers have studied parental sex preferences with increasing methodological sophistication. The earliest studies were usually retrospective in nature, attempting to discover whether

parents who already had children of one sex or the other (or who had at least one of each) had been more, less, or equally likely to continue childbearing. Later studies asked more specific questions about preferences at each parity, and, as family size began to decrease, attempted to separate preferences for numbers of children as well as their sex.

a) Findings from Attitudinal Studies

The major attitudinal studies of U.S. sex preferences were compared by Williamson (1976a:48-49) in table form that showed the sample size and composition, the technique for assessing the effects of sex preference, and the results. Samples consisted of couples (Clare and Kiser 1951), women only (Freedman et al. 1960; Westoff et al. 1961; Westoff and Rindfuss 1974; Cutright et al. 1974), and college students (Norman 1974). Since these studies have been thoroughly reviewed by Williamson [11], I only recap here the more significant ones (particularly those using random sampling techniques). In further sections, I discuss all studies subsequently reported in the literature.

i. Samples of Couples

In a study done by Clare and Kiser (1951), 1,309 Indianapolis couples who already had children were asked whether sex of child(ren) at each parity had influenced their decision to continue childbearing. Results indicated that the desire for at least one child of each sex was the prevailing

norm, that most couples were satisfied with the sex of whatever children they had, and that not many people had preferences strong enough to be an important determinant of total fertility. Freedman et al. (1960) found that most of the 889 couples in their national probability sample preferred at least one child of each sex, and that this had a "minor but significant" influence on plans to have an additional child.

ii. Samples of Married Women

In their examination of 5,981 married women in the 1970 National Fertility Study (a probability sample), Westoff and Rindfuss (1974) found a weak son preference when respondents were asked for sex choices in odd numbers of children (1, 3, 5 etc.) but an overall preference for at least one child of each sex. They also found a rather high percentage who wanted a firstborn son (63%). The Cutright, et al., (1974) study of 273 wives living in five North Central states found that the sex composition of the first two children was neither a good predictor of the intended mean number of children nor of whether a couple intended to have more than two children. The authors speculated that sex preferences tend to be less salient when actual and expected fertility rates are low, as they were then becoming.

iii. Samples of College Students

While most previous studies of college students, nearly all of whom were at zero parity, tended to show strong son preferences, Norman's study (1974) of 412 students who were parents found that most preferred a mix, though there was some slight evidence that men who planned no more children had already achieved their "boy quota." Overall, these attitudinal researchers found an overwhelming preference for at least one child of each sex and a general preference for a firstborn son. Many smaller attitudinal surveys have been of college students, largely an unmarried group, up to a third of whom (depending on the sample and the question) chose the response "no preference." Preferences, when expressed, were for a first or only child to be a boy, for an equal number of boys and girls in an even-number of children, and for a slight boy preference when an odd-number was chosen. Little change in responses over time appeared until recently; currently most researchers conclude that preference for a small completed family seems to prevail over sex preference.

Attitudinal studies of other adults (mostly married women, seldom probability samples) either showed a very mild son preference, or a strong preference for sex balance in the completed family. In general, studies of young adults showed stronger preferences for males than did studies of older adults (Williamson 1976a). Overall, parents (or par-

ents-to-be) in the United States said they would like at least one child of each sex; many would also like their firstborn to be a son. And most would prefer a small completed family -- no more than two or three children.

b. Attitudes Towards Use of Sex Preselection Methods

Of particular interest here are the attitudinal studies which also asked if respondents would themselves use sex preselection techniques should they become available. Markle and Nam (1971) found that of the 283 college students in their sample, only 26% said they would like to choose the sex of their future children, 40% were opposed to the idea, and 33% either had no preference or were undecided. But when further asked if they would use a method that included artificial insemination, as opposed to the use of a prescription "pill," only 16% remained favorable to the idea for themselves, 23% were unsure or had no preference, and 62% were now unfavorable to the idea.

In the Westoff and Rindfuss study (1974) of almost 6,000 currently married women, 39% were in favor of using sex preselection technology for themselves, 15% were neutral, and 47% were against the idea. The percentages changed slightly depending on the sex composition of past births. Those with all girls were 43% in favor of using sex preselection, those with all boys 40% in favor, those with no births yet or with more girls than boys were 40% in

favor, those with more boys than girls were 38% in favor, and those with an equal number of each were 33% favorable. Here the general question of "would you use a method if one were available?" was presented, without any specific technique of sex preselection mentioned.

c. Findings from Behavioral Studies

Behavioral studies of the effects of sex preferences on fertility in the United States have consistently shown that most parents desire at least one boy and one girl. While families with two children of the same sex are more likely to go on to have a third child than are those with a sex balance, there is little evidence that parents of only girls are more likely to continue childbearing than are parents of only boys. Williamson points out that many of the earliest studies were of elite samples, typically drawn from Who's Who in America [12]. While these researchers generally found a son preference, based primarily on the high sex ratios of last-borns (i.e., most were sons), she suggests that something other than sex preference might better explain the data (such as a different biological and/or nutritional difference between this and other groups) (Williamson 1976a).

The most commonly used indirect measure of sex preference is that of parity progression ratio (PPR), the percentage at N parity who go on to N + 1 parity. If parents of same-sexed children were more likely to continue childbear-

ing than those who had achieved a mix, sex preference can be inferred. Studies using this measure have usually found a preference for a child of each sex [13], though two studies found no effect at all [14].

The only study of a non-elite sample to show a son preference was that of Westoff, et al., (1961), which analyzed the length of birth intervals after a son compared with that of a daughter, and found an average three-month longer interval after a son. The authors' interpretation here was that some parents were more pleased with the birth of a son and hence postponed the next birth longer. Williamson (1976a:45) pointed out that "other interpretations of the data are possible" here, though did not indicate what such interpretations might include.

Williamson (1976a:45) also found a weak son preference in the Ben-Porath and Welch (1972) study, where the researchers reported that families with daughters only were more likely (58%) to actually go on, or expect to go on, to higher parities than were families with sons only (54%). As noted, however, most people in the study preferred a mix.

3. Recent Studies of Sex Preference of Offspring: 1976-1987

Sociological and demographic studies of sex preferences from the late 70's to the present have continued to find either an underlying son preference (slight or pronounced, depending upon on the instrument used and the interpretation

of results) or a preference for a sex mix -- but mostly the latter.

Coombs (1977:264), however, found in her nationwide area probability sample of 6,897 married women that "...U.S. wives are much more likely to have a son than a daughter preference, and more likely to have either one than a positive underlying preference for an equal number of boys and girls." This clearly contradicts earlier studies, thus would tend to indicate that over time (i.e., in comparison with earlier studies of sex preference) women's preferences had become more biased towards sons. What Coombs claims, however, is that a more accurate sense of "real" preferences was obtained by using a more sophisticated type of questionnaire, one which made use of the I-scale preference measure [15]. Her interpretation was that earlier studies may have confounded number preference with sex preference in ways that did not allow "true" sex preferences to emerge.

Gilroy and Steinbacher (1983:675) found that

[w]hen compared to earlier research, the most striking results of the present study [of 236 undergraduates] relate to the increasing percentage of young people [i.e., unmarried college students] who express 'no preference' in respect to sex of first-born child... [16]

On the other hand, those who did have a preference were more likely to prefer males, especially for firstborns [17].

A study using samples of women from the 1965 and 1970 National Fertility Studies and the 1976 National Survey of

Family Growth (N=1,512) indicated that women's fertility decisions regarding future children were affected by the sex of previous children. Pointing to a more widespread preference for a mix than for males, Sloane and Lee (1983:366) consistently found that women who had same-sexed children were nearly twice as likely to intend to have another child than were those who had both sexes, and they were also twice as likely to be undecided about stopping childbearing. The researchers also suggested that number was becoming an increasingly important consideration, with family-size norms centering more on two-child families, and pointed out that factors which affected the decision to go from two to three children were now the most salient -- sex perhaps being one of the stronger factors, for at least some families.

Dixon and Levy (1985:267), found that

...a substantial majority of our respondents [an urbanized area sample of 309 adults] expressed a strong preference for male first borns and for sex-balanced completed families..

but that "...our results support the notion that sex preferences are virtually unimportant factors in actual or intended fertility behavior in a low fertility population"

(emphasis theirs). Williamson (1983:132) similarly concluded in a later review of the literature on sex preferences:

...it appears that sex preferences decisively affect the fertility of only a small percentage of American couples...number preferences tend to dominate sex preferences for most American couples.

a) Recent Attitudes Towards Sex Preselection

In a small pilot study of 47 married couples with a graduate-school level of education, Rosenzweig and Adelman (1976:335) concluded that sex choice would be both accepted and used by "the majority of highly educated, middle-class individuals." They found that 62% of the respondents said that the sex of a first child would not be important to them, but if they were to choose the sex of a firstborn, 37% would choose a son, and 12% a daughter (while 49% still stated no preference). When asked if they would actually use a sex preselection method for a first child, 42% said yes, 38% said no, and 19% were undecided. But when asked if they would choose the sex of a second child, 60% said yes, they would choose the opposite, 8% would choose the same, and 31% said they had no preference (which likely means they would probably not use sex preselection).

In a further study of 96 white married couples, matched into eight groups based on education and present family size, Adelman and Rosenzweig (1978) again found that the majority of respondents said they would use sex preselection if it were available. As in their 1976 pilot study, most interest was in selecting a second child of the opposite sex of the first, and fewer respondents were interested in selecting for a firstborn; however, those who were interested in doing so preferred sons. Additional questions about specific methods of sex preselection were asked, including

selective intercourse (i.e., timing of intercourse relative to ovulation), a sex-choice pill, artificial insemination, and a combination of fetal sex determination and abortion. Most respondents rejected the latter two methods when choosing among the four.

Taking into account the probability that sperm separation with artificial insemination was the most likely of the pre-conception methods to actually become available, Hartley and Pietraczyk (1978) asked a stratified sample of 2,138 students from six California colleges and universities if sex predetermination methods should be available to all parents, if they themselves would use such a procedure, and what priority they would give to research on sex predetermination (as well as several other biomedical procedures, such as research on reducing physical and mental handicaps, help for the infertile, development of human cloning, etc.). Sixty-six percent of their respondents agreed that everyone should have access to sex preselection methods, 45% said they would probably use it themselves (with parents of either one or three children even more in favor), but only 37% would give sex preselection research a high or moderate priority (and 13.5% would prohibit it altogether).

Matteson and Terranova (1977) studied 45 female college students' degree of acceptance or rejection of various methods of conception (some of which were still hypothetical at that point), including sex predetermination, artificial

insemination with mate's sperm, in-vitro fertilization (one's own egg, mate's sperm), artificial insemination with donor sperm, and artificial insemination in-vivo (with another woman's egg) into the fallopian tube. In the case of sex predetermination, these researchers reported that their respondents "varied widely on use...for themselves but heavily viewed it as acceptable for others to use," though gave no percentages. They further found that those respondents who would not use sex preselection were all single, while the 12 married respondents, who were substantially older and much less conservative in the choices offered, would use it.

Dixon and Levy (1985) asked an urban area sample of 309 adults whether or not they would approve of, or use, either pre- or post-conception methods of sex preselection. As in similar studies, more people approved of such methods for others than said they would use them themselves. Looking at just the preconception method, which was three times as likely to be favored as the postconception method, 34% said they would use it for a firstborn (about half of whom wanted a boy, the other half equally split between wanting a daughter and expressing no preference) [18], 33% for a second child, and 26% for a third. In examining the relationship between sex preferences of these respondents and their sex predetermination attitudes, these researchers found that sex preference was not a significant factor in deciding on either the total number of intended children or

whether or not sex preselection should be used, and that family size preference prevailed over sex preference.

The only U.S. study of pregnant women's attitudes towards sex of offspring appearing in the literature [19] was done by Steinbacher and Gilroy (1985), who asked their 140 respondents (all in the third trimester of their first pregnancy) if they would have used sex preselection for that pregnancy, had it been available to them. Interestingly, and in vivid contrast to other studies, the majority (59%) expressed no preference as to the sex of the child they were carrying. Of those who did have a preference (41%), 24% wanted a girl and only 18% wanted a boy. And of those who had a preference and said they would have been willing to use sex preselection techniques (19%), half wanted a girl and half wanted a boy. While no conclusions were drawn from this study, several possible explanations of the findings were offered. On the one hand, they may have reflected a new societal attitude of equal preference for sons and daughters. Or, it simply might not have been seen as appropriate for an expectant mother to be too invested in an outcome she could not alter at this point. Stating no preference allows one to express happiness with what one actually has, and does not set one up for disappointment [20].

C. CRITIQUE

Some of the contradictions in the sex preference research can be accounted for by differences in sampling techniques or instrument design, others by an examination of underlying assumptions, often implicit, brought to the research.

1. Sampling Problems

Much of the research on sex preferences has been done on small, nonrepresentative samples. Though some useful information can be inferred from these cumulative studies, such as the constant preference for firstborn sons, few other generalizations can be made. In addition to the often small numbers involved, many of the samples consisted of women only. Since both men and women are likely to have preferences for the sexes of their offspring, both should be asked what these preferences are. Studies of marital discussions about sex preferences and negotiations about the use of sex preselection techniques would also be useful, particularly when preferences differed. Other studies focussed on college students, most of whom were as yet unmarried. I would argue that data on reproductive intentions from this generally younger, and perhaps somewhat more idealistic, group is of much less significance than is data from people who are actually facing family-forming decisions.

There are also differences in samples as to marital status and parity, with many respondents not married and thus not faced with the immediate salience of sex preselection. Others have one, two, three or more children in varying sex compositions where preferences are more complex and difficult to distinguish from number preference. Often, where married couples are sought as respondents, they are only selected if in a first marriage. Given that about half of all marriages eventually end in divorce, and that many of the divorced remarry and go on to have children in the new marriage, this may be an unwarranted exclusion.

Sometimes respondents are excluded from the analysis in an unexplained and arbitrary fashion. Gilroy and Steinbacher (1983:675) eliminated from consideration those students who indicated they were pregnant or who had already had a child, then pointed out that one limitation of their study was that the subjects were "mostly unmarried, middle-class college students for whom the choice was neither imminent nor salient." Rosenzweig and Adelman (1976:339) asked their subjects to indicate both their desired family size and sex composition of offspring, but then eliminated replies from people who already had two or more children "since their replies, of course, would be biased upwards."

Finally, there is a paucity of studies that take into account other demographic differences known to affect fertility rates and family planning intentions, such as race,

ethnicity, religiosity, education, socio-economic class, and urban or rural residence.

2. Underlying Assumptions

Many researchers apparently assume that when sex preferences exist, they are static, will remain constant over time, and are to be unearthed before real world experience "contaminates" these original preferences. Young, unmarried adults are surveyed and their responses are projected into future actions throughout their reproductive years. That preferences may change in the face of real world experience is characterized as "rationalization," not as a true reflection of underlying "real" preference [21]. As we have seen, people who are actually in the midst of their family-forming efforts are often excluded from a given study.

Another implicit assumption made by most of these researchers, particularly those who use modelling techniques in fertility related decision making, is that the majority of conceptions are (or will be) rationally planned [22]. This ignores the high rates of teen pregnancies [23], most of which are unintended, as well as studies which show that most first conceptions even among married couples were unplanned. There is also a hidden assumption that couples who stop childbearing do so because they are satisfied with both the number and sexes of their children. Rarely is mention made of infertility problems (including miscarriage and stillbirth) that might affect intended outcomes, or other

consequential happenings such as the death or illness of a spouse, divorce, economic hardship, birth of a handicapped or otherwise difficult to manage child, etc.

Behavioral studies that employ the parity progression ratio measure (where aggregate data are examined to see if parents of same-sex children are more likely to continue childbearing than parents who have a mix) assume that sex preferences will impel parents to have an additional child. As McClelland (1979; 1983) pointed out, some couples may stop at a given number of children regardless of their sex preferences, and others may be unwilling to take the chance of having an additional child of the same sex in their attempts to achieve a mix.

Coombs' (1975; 1979a) I-scale measures of sex and number preferences do allow for the distinction to emerge as to which of the two is dominant, but do not demonstrate a link between preferences and actual fertility decisions. Additionally, "odd" cases -- those which do not follow a logical unfolding of number or sex preference -- are excluded from analysis. For instance, a respondent who indicated that they preferred a son for an only child, and two boys and one girl in a three-child family, would be expected to choose all boys if they were forced to choose between all girls and all boys in their three-child family. If I am interpreting Coombs correctly, someone who chose three girls over three

boys in the same situation would be difficult to score, and would thus be left out of the final analysis [24].

The last major assumption, as Largey (1973) first pointed out, is that social scientists have almost always posited that a sex control "pill" or other such easy, cheap, effective and nonproblematic method of sex preselection is just around the corner. They have ignored the real difficulties of developing reliable methods and have not investigated the probable use of more cumbersome, less effective (i.e., less than 100% probability of getting the sex of one's choice) measures such as sperm separation and artificial insemination. Acceptance or rejection, and widespread or limited use of sex preselection will greatly depend on the specific method(s) available.

D. THE CLINICAL LITERATURE ON SEX PRESELECTION METHODS

As illustrated in the introduction to this chapter, efforts to preselect the sex of children have been ongoing for centuries. However, most claims of success, even those made by modern-day scientists and physicians, have not been sustained over time. As a consequence, the clinical field of sex preselection remains controversial, and sex preselection techniques are viewed quite skeptically by a majority of researchers and clinicians [25]. In a review of the clinical literature on timing of fertilization and sex ratio of offspring, William H. James (1983:74) notes that:

I do not think I have ever read the words "I was wrong" in the writings of a sex hypothesizer. So sex hypotheses have tended to die with their inventors rather than from an overload of admitted contradictory evidence. It is not surprising therefore that other scientists should view the topic with intense skepticism. To an uncommitted mind, one sex hypothesis is about as credible as another.

And many claims of success, even when replicated, are either dismissed outright or are seemingly expected to present a much more rigorous test of proof than other reproductive research efforts (see Gledhill 1984; Brandriff et al. 1986).

In this review of the clinical literature I first consider most of the sex preselection techniques that have appeared in recent medical research journals (1970-1987) [26]. I then focus on those studies which have been replicated by others, note some of the present controversies in the field, and last consider the future possibilities for sex preselection.

1. Recent Research

It should be noted at the outset that there is not, as yet, a scientifically valid method of preselecting the sex of one's offspring that is 100% (or even 90%) accurate or that can be done by the parents alone. There is a method involving sperm separation and artificial insemination that has claimed a success rate of 75-85% in selecting for males; a modification of that method has had somewhat less success in selecting for females. Both methods have clinical replication, and the clinics using them reported over 600 babies

born as of August, 1988 (Ericsson 1988). In addition, there is at least one other method of sperm separation for female selection that has been replicated in the laboratory (Kaneko et al. 1983).

One method that is claimed to be successful but that has not been replicated by independent researchers relies on a special diet for the mother-to-be prior to conception. Other methods which have appeared in the literature include timing of intercourse around the woman's ovulatory cycles, and various other forms of sperm separation.

It should also be noted that research interest in sex preselection is not limited to the human species. In fact, much sex preselection research to date has focussed on the ability to successfully preselect offspring of various commercially bred domestic animals, particularly cattle. Even modest changes in the present sex ratio of cattle herds could be very lucrative, by increasing the percentage of successful pregnancies and the percentage of bull calves born. According to Seidel and Amann (1982:1-3):

There probably is more interest in sexing bovine sperm than in sexing sperm of all other nonhuman, mammalian species combined... Since the average value of a newborn calf is higher than that of a newborn of most other domestic species, the costs of sexing might be justified more easily in the cattle breeding industry... [added gross sale value for sexed bovine semen in North America could be \$50,000,000 annually].

Thus, regardless of the acceptance of, or even possible

legislation against, sex preselection in humans, sex preselection research per se will not disappear.

a) Diet

Joseph Stolkowski and Jacques Lorrain (1980) had two groups of women follow a regimen which controlled for the amount of calcium, magnesium, sodium, and potassium in their diets beginning 4-6 weeks prior to fertilization. For a girl, a diet low in salt (to deplete the body of potassium) and high in calcium and magnesium was prescribed. For a boy, a hyper-salted diet (5000 mg of sodium per day) with high levels of potassium was followed. Stolkowski's group contained 36 women, and 31 (86%) were reported to have been successful in their sex preselection attempts. Lorrain's group was much larger, containing 224 women, and 181 (81%) were also report-edly successful in getting the child of the sex they wanted. The researchers note that "success depended largely on the seriousness with which the participants stuck to the prescribed diet" (1980:442).

Stolkowski and Lorrain believed that the success of these dietary manipulations was either due to differences in the intracellular pH, which would selectively activate male- or female-bearing sperm, or that some sort of immunologic processes would be activated by the body to selectively act against particular sperm. Discussion of underlying theory as to how this leads to sex selection is quite vague, however, and no verification of the hypothetical sex selection

mechanisms mentioned by these authors has occurred elsewhere in the literature on sex preselection in humans, although at least one book popularizing this method has been published (Langendoen and Proctor 1982) [27].

b) Timing

One of the more long-lasting debates in the literature is that regarding the relationship between the length of time that elapses after ovulation and the likelihood of selective fertilization by either X- or Y-bearing sperm. One group of researchers claims that intercourse close to ovulation will favor male conceptions (Kleegman 1966; Shettles 1961 and 1970). This method was first popularized in an article in Look Magazine (Rorvik and Shettles 1970) and later in a book by David Rorvik [28] and Landrum B. Shettles, called Your Baby's Sex: Now You Can Choose (1970). Shettles (1970) has also consistently claimed to be able to distinguish between the X and Y sperm by looking at them under the microscope. He either sees one type of sperm that is larger and with an oval head, or another type with a smaller and rounded head. He assumes the former is the X-bearing, the latter the Y-bearing, though it is interesting to note that in the years since his initial "discovery" no other researchers have been able to see these morphological differences (Meistrich 1982).

The Shettles method, still popular [29], is as follows: for a girl, (1) have intercourse up to 2-3 days before

ovulation, preceded by an acid douche of water and vinegar, (2) without female orgasm, (3) with shallow penetration by the male at the time of his orgasm, (4) in face-to-face position. For a boy, (1) have intercourse at the time of ovulation, with prior abstinence during a given cycle, preceded by an alkaline douche of water and baking soda, (2) with female orgasm, (3) and deep penetration at the time of male orgasm, and (4) with vaginal penetration from the rear. All these steps assure the "proper" pH of the vagina and condition of the cervical mucus, proper location of ejaculation, etc., so that the sperm are selectively speeded up, or slowed down, on their way to the egg. While Shettles' samples were quite small, consisting only of 22 attempts by women to conceive boys and 19 attempts to conceive girls (with an 86% and 84% success rate), his method has been, and continues to be, widely publicized and used.

Another group of researchers, especially Guerrero (1974, 1975a, 1975b) [30], claims just the opposite -- that a female is more probable when intercourse occurs close to ovulation. These researchers suggest that for male offspring, intercourse early (several days before ovulation) or late (some time after ovulation) will result in success. This method (hereinafter referred to as the Whelan/Guerrero method) has also been popularized, in a book by Elizabeth M. Whelan (1977), definitively titled Boy or Girl? The Sex Selection Technique that Makes All Others Obsolete.

Williamson, et al., (1978) conducted an experiment in Singapore from March 1975 to July 1977 that tested the Shettles "rhythm and douche" method of sex control [31], but it was unsuccessful. Of 31 women who had definite sex preferences (of the thousand who came to the clinic), all wanted boys and all attempted to follow the method. Fourteen had boys (45%), though "by chance alone, one would expect about sixteen to have boys" (1978:375). Only 19% of the women (N=6) were found to have used the method completely correctly, however.

To add to the confusion, conception by artificial, rather than natural, insemination is believed to produce different results. If artificial insemination is done very near the time of ovulation, more boys seem to occur -- unless the woman's ovulatory cycles have been regulated by means of clomiphene or gonadotropin, in which case an excess of girls is expected (James 1983; Sampson et al. 1983).

In a lengthy review of the literature, James (1983) concluded that while the timing of fertilization does seem to somewhat influence the sex of offspring, the mechanisms actually responsible for this are as yet unknown, though might include physical distinctions between the two sperm types and/or the mother's hormone activity. He also concluded (James 1983:89) that the now fairly extensive literature on pH values in the woman's reproductive tract shows no "convincing evidence that they affect sex ratio [32]." This

would probably refute the dietary claims proposed above as well as those timing methods that also recommend an acid or alkaline douche for a female or male, respectively.

France, et al. (1984) pointed out that a majority of the studies on timing of intercourse were retrospective and also did not use reliable indicators of ovulation. In a prospective study of sex preselection, relying on the Shettles theory (but without precoital douching or taking into account position during intercourse or whether or not the female achieved orgasm), 185 couples were given instructions on how to recognize "fertile type" cervical mucus and how to chart the woman's basal body temperature, in order to recognize ovulation [33]. The researchers reported 52 completed pregnancies which resulted in a viable infant, and for 33 of which they claimed that "the fertile coital act could be unequivocally identified" (1984:897). Only 39% of the 33 couples in this latter group had infants of the sex they wanted, effectively disconfirming the Shettles theory, but tending to support the claims of Guerrero that the longer the interval between intercourse and ovulation, the higher the sex ratio for males. Had these couples been actually trying for the sex they got, then, they would have been 61% successful. While the authors themselves feel that their results "clearly refute the theory that intercourse close to ovulation favors male conceptions" they also feel that it "may be premature to conclude that a male child is more

likely to be conceived if coitus takes place several days before ovulation" (1984:894).

Continuing this line of research, Perez et al. (1985) described their review of 114 conception charts from women using the NFP method where they also found a higher than expected male sex ratio. They then combined their data with three other studies of NFP conceptions (N=622) and found a significantly higher male sex ratio. They concluded that "there is a higher probability of male conceptions associated with intercourse before or after the most fertile period" (1985:152). But while the results were statistically significant, the actual probability of having a son was only 58%.

c) Sperm Separation

Most researchers have based their studies on the assumption that Y-bearing sperm differ at least to some degree from X-bearing sperm. There have been suggestions of subtle differences in size, weight, swimming speed, electric charge, antibody production, and cell structure. Some of these differences are attributed to the slightly smaller amount of chromosomal material in the Y-bearing sperm, since the Y chromosome is a great deal smaller than the corresponding X chromosome (though there are 22 other chromosome pairs of nearly equal size in the sperm head, and other biological material in both head and tail). Other differences might result from actual genetic expression [34] of the

particular sex chromosome. Given these differences, separation of the two types would seem at least theoretically possible [35].

Daniell et al. (1982) report on the successful clinical replication of sperm separation using a convection counter streaming galvanization technique which allows simultaneous separation of X- and Y- bearing sperm, originally developed by Bhattacharya (1977) [36]. They found that each fraction had been enriched to 77%. No trials of this method involving actual insemination have appeared in the literature to date.

The method of sperm separation appearing most frequently in the clinical literature [37] was developed by Ronald J. Ericsson and his co-workers (Ericsson et al. 1973). It consists of filtering washed semen through increasing densities of human serum albumin; the swimming speed of the Y-bearing sperm is slightly faster than that of the X-bearing sperm, so the proportion of sperm found at the bottom of the column is enriched in the male-bearing sperm, which are then artificially inseminated into the mother-to-be on the day of, or the day after, ovulation (see Corson et al. 1984). A variation of the method is now also in use for female selection [38].

Another method for female selection, which filters sperm through a gel rather than through human serum albumin, is also in clinical use (Quinlivan et al. 1982; Corson et

al. 1983 and 1984; Univ. of Minn. 1986). Several other filtration mediums are claimed to work, but have not yet appeared in the literature in actual clinical trials (Kaneko et al. 1983; Shastry et al. 1977).

i. The Ericsson Method

Although two early research efforts failed to replicate the Ericsson method of sperm separation [39], all subsequent published studies confirm both the clinical separation and the resultant high sex ratio of offspring. Beernink and Ericsson (1982) reported that as of April, 1982, there had been a 79% male birth ratio in 84 patients from clinics that had used the Ericsson method for male selection. They also noted that when women had been treated with Clomid (to regulate ovulation), they were significantly more likely to produce females, even though the same sperm separation that concentrated the male-bearing sperm had been used. Corson et al. (1984) reported an 80% success rate in choosing male offspring using the Ericsson method (in 35 conceptions). As of August, 1988, there were 603 sex preselected children reported from 40 sperm centers, with success rates between 73% and 76% for male selection (three different protocols have been used to date), and a 64% success rate for female selection (Ericsson 1988).

2. Current Controversies

At least one researcher is skeptical of the quinacrine staining technique's ability to detect Y-chromosomes accurately as used in laboratory verification of sperm separation into X and Y bearing fractions. Gledhill (1983) points out that a high (5.6%) percentage of sperm with two or more fluorescent spots are routinely seen, which he assumes represent sperm with two Y chromosomes. Such high nondisjunction rates [40] were not confirmed in an examination of 1,000 human sperm [41] (in fact, no excess Y chromosomes were found). Gledhill (1983:573) feels that these "definitive" studies allow him to conclude that:

[W]henver enrichment claims for human X- or Y-chromosome bearing sperm are based only on identification of the Y sperm by quinacrine, the data must be questioned because the endpoint may be producing spurious results.

He recommends that corroborative evidence for sperm enrichment should be provided before future research is accepted for publication. One source of evidence, of course, would be the sex ratio at birth after insemination with enriched semen.

In a letter to the editor in reference to Gledhill's article, Levinson [42] (1984:489) noted that at that time the Ericsson method had resulted in 104 human births, 77% of which were male, and that such clinical observation is "of extreme importance." In his reply, Gledhill (1984:490) stated that while in his opinion "Ericsson's data are the

strongest of their type in the literature," it was gathered in a "less than ideally controlled fashion...and until supporting evidence is in hand ...the Ericsson technique will remain controversial, tantalizing, [and] enigmatic." Most critics of the Ericsson technique want replications to be performed by researchers who are not themselves also licensed to use the technique. Most also want the use of controls, though this does not seem warranted to me for two reasons. One, it is unlikely that couples would agree to be in a control group where artificial insemination with husbands' sperm was used but the sex preselection method was not. Second, I would argue that the present secondary sex ratio is already a "natural" control; deviations from the expected sex ratio could reasonably be attributed to the method of sex preselection used.

3. Future Possibilities for Sex Preselection

Most clinical researchers expect that some method of sperm separation will eventually prevail in the attempts to successfully pre-select sex of offspring, probably within the next decade (Amann and Seidel 1982). It is also assumed that while enrichment of sperm is to be expected, no sperm separation method is likely to ever be 100% successful [49].

E. CONSEQUENCES OF WIDESPREAD USE OF SEX PRESELECTION

If sex preferences are translated into actual behavior, **one** of the consequences would be a change in the sex ratio -- assuming, as most researchers do, that there is an **overall** preference for males [43]. Otherwise, people **preselecting** males would equal the numbers **preselecting** females, and **the** overall sex ratio would not change, even though **individual** families might change in composition. Any such **deviation** from the "natural" sex ratio could have **serious societal** consequences, though the experts differ somewhat in **their** prognostications as to the form and severity of such **changes**.

Another possible effect of sex preselection might be a **change** in fertility rates. This could work two ways: **couples** who wanted at least one child of each sex (or any other **number** and sex combination) could have what they wanted **right** away, then stop. Aggregate decisions of this nature would lower total fertility rates. On the other hand, **parents** who were hesitant to continue for fear of getting the "wrong" sex could now go on with childbearing, assured of **adding** the "right" sexed child to the family -- such **aggregated** decisions as these would raise fertility rates.

A third effect of sex preselection might be to change **the** birth order of sexes within families, particularly if **the** much-cited firstborn son preference were acted upon. **Besides** these direct effects on fertility and birth order,

other more indirect effects of sex preselection have been considered. Many of the more severe effects with respect to sex ratios, fertility, and birth order would take place in societies with very strong son preferences, of course. In countries like the United States, where preference for sons is less strong, fewer immediate consequences would emerge, though the effects after several generations might be almost as severe.

Amitai Etzioni (1968:1109), in an old but oft-cited article in Science, predicted the following consequences of even a fairly small shift in the present sex ratio:

We note, first, that most forms of social behavior are sex correlated, and hence that changes in sex composition are very likely to affect most aspects of social life. For instance, women read more books, see more plays, and in general consume more culture than men in the contemporary United States. Also, women attend church more often and are typically charged with the moral education of children. Males, by contrast, account for a much higher proportion of crime than females. A significant and cumulative male surplus will thus produce a society with some of the rougher features of a frontier town. And, it should be noted, the diminution of the number of agents of moral education and the increase in the number of criminals would accentuate already existing tendencies which point in these directions, thus magnifying social problems which are already overburdening our society.

In spite of this, he felt that "the deleterious effects of widespread sex control would probably not be very great" (1968:1107) since "societies are surprisingly flexible and adaptive entities" (1968:1109) and could presumably adjust to any misalignment in the sex ratio.

Colin Campbell (1976:88) pointed out similar and additional possible disadvantages of a male-surplus world:

If there is any truth in the idea that males are inherently more aggressive than females, then a male-heavy society would be more aggressive. The crime rate would rise. If war is a man's game, wars would follow. More mobility, more men's stores, more sports on television. More sexual pressure on women, more alcoholism, more autism and retardation among children. More of everything, in short, that men do, make, suffer, inflict, and consume.

John Postgate (1973:15), a microbiologist writing in *New Scientist*, viewed sex preselection and the resulting high male sex ratio as the only hope for the overpopulation trend:

Countless millions of people would leap at the opportunity to breed male: no compulsion or even propaganda would be needed to encourage its use, only evidence of success by example. There would be even less interference with individual freedom of action than the persuasion in today's birth control projects entails. Consider what would happen then: the population would go on increasing for a couple of decades, but by then a very large proportion would be male and infertile in the sense that, in proportion to the efforts of their parents, their opportunity to breed further would be drastically restricted.

Largey (1973) questioned some of Etzioni's (1968) predictions and speculations. He noted first that Etzioni failed to consider that if the sex ratio were indeed threatened, some sort of government action might be taken to prevent widespread use of sex preselection. Secondly, he argued that sex preferences themselves might change as people became aware of an altered sex ratio, rather than remaining constant as Etzioni assumes. He then noted that even if

the sex ratio were to become unbalanced, it would not necessarily lead to the kinds of societal disruptions imagined by Etzioni. I would add here that the immediate change in the sex ratio would be from an abundance of babies, not adults, whose progress through society could be anticipated well in advance, much as we have done with the "baby boom" and various "boomlets" and "busts." Last, Largey pointed out that not everyone would want to use sex preselection even if it did become available, and that we have yet to really tap into cultural, ethnic, religious, and class differences in attitudes towards the use of sex preselection. He also warned (1973:316) that projected consequences such as these that are "largely unwarranted and unnecessarily provocative" might impinge on the discipline's credibility.

There are two general sets of issues, then, that arise when the consequences of widespread use of sex preselection are discussed. One focuses on the almost certain probability that such an imbalance would result in an excess of males, much to the detriment of females. The other focuses on the rights of parents to freely select among various choices as to number, sex, spacing, etc. of their children vs. the rights of the rest of society to not have to suffer from any resulting imbalance.

1. Feminist Issues

The feminist dilemma here is simply stated: how can one reconcile the fundamental feminist stance for freedom of

choice in reproductive matters with the simultaneous opposition of sex preselection as sexist by definition and potentially oppressive to women in particular [44]?

Freedom of choice allows a woman more control, assuming it is the woman alone who is making these reproductive choices. There is little published which shows the actual dynamics between husbands and wives who are making decisions about contraception, pregnancy, abortion, sterilization, in-vitro fertilization, sex preselection, or avoiding child-bearing or aborting for genetic reasons. These methods do, at least in theory, allow women much more control over their bodies and their lives than has been available in the past, though at the same time pose new risks [45].

Even if women are eager to take on these choices and their multitudinous burdens, feminist scholars point out that these "freely" decided upon choices might have ultimately oppressive consequences for these, and all other, women (Holmes et al. 1981; Warren 1985). A common argument here is that if first-born sons are desired by a majority of couples who do use sex-preselection, this could reinforce sex role stereotypes and result in "a nation of younger sisters" leaving fewer female first-borns who can go on to become high achievers [46]. A further possibility is that a decrease in the numbers of females being born would put increasing pressures on women to marry, whether or not they really wanted to, and would also force higher status men to

drop down to lower age and income brackets in an effort to find a suitable mate, thus making it difficult for these women to achieve equality in their marriages to these older and wealthier husbands. At any rate, most feminist scholars see little that is beneficial in widespread use of sex preselection. Even if preferences were reversed to girls, many would argue that this is still inexcusably sexist (Powledge 1981; Warren 1985).

2. The Ethics of Individual Choice vs. Societal Consequences

Bioethicists have generally held that freedom of choice in reproductive matters is greater than the right of the state to intervene. On the other hand, if the results of cumulative individual fertility decisions become a "burden to society," one might ask if society should then have the right, perhaps even the duty, to exercise control over such decisions (Beauchamp and Childress 1979; Kieffer 1979). Etzioni (1973:104) provides a useful chart with which to examine reproductive interventions, suggesting that "therapeutic" goals and "breeding" goals be considered as to their applications to the individual (and the individual family) and to society as a whole (the latter including both voluntary and coercive [47] interventions). Using his chart as a framework, and adapting it to examine sex preselection (see Figure 2.1), illustrates some of the important issues raised by this technology.

Figure 2.1 -- A TYPOLOGY OF SEX PRESELECTION INTERVENTION

| | Therapeutic Goals | Breeding Goals |
|-------------------------------|---|---|
| Individual Service | Select "right" sex to not pass along genetic defects | "Right" sex mix and desired numbers of children |
| Societal Service | | |
| Voluntary | Encourage people to not "dirty" the gene pool by selecting "right" sex | Encourage sex selection for balance and smaller families |
| Coercive | Require abortion of known defects and/or refuse to support "defective" children | Require 2-child limit in families, with sex preselection option |

See Etzioni, A. Genetic Fix. New York: MacMillan, 1973:104.

To prohibit the use of sex preselection technology would remove a valued option for those couples who do not want to pass on a sex-linked genetic defect yet who still want to have children, or who simply want to assure themselves of the exact number, spacing, and sex of children in their completed family. Such a prohibition might also be an unacceptable intrusion into individual rights of decision making.

Another ethical tenet is that important decisions -- such as those involving reproduction -- should be made only by those most affected by them (Bandman and Bandman 1978). If this is true, more questions are raised: Who speaks for the sex preselected child? And should input into policy decisions be made only by parents, or should those who support or oppose sex preselection on other grounds, such as genetic or religious, have an equal say in the matter? And who speaks for "society," which might be affected by this aggregate decision making?

At the level of the individual family, sex preselection has several benefits. Parents who are concerned about the transmission of a sex-linked genetic disorder can preselect for daughters if the mother is a carrier, or for sons if the father is afflicted. Parents who have strong preferences for both the sexes and number of their offspring can choose exactly what they want, and are likelier to be happier as a result. Fewer "wrong" sexed children will be born into

these families. There are also possible advantages at the societal level, with fewer unwanted children being born and a lower overall birthrate.

Some possible costs of widespread sex preselection might include a skewed sex ratio (with unknown but possibly serious consequences), more firstborn sons, more carrier daughters with a subsequent "dirtying" of the gene pool, and increasing "commodification" of children [48].

A further ethical consideration is that of fairness: will only the privileged classes have access to sex preselection? Will poor people in the U.S. and in third world countries have access to such technologies?

Given that a "pill" for sex preselection is not even on the research agenda and that sperm separation is the most likely technique to offer any success in the foreseeable future, it becomes useful to study those people who might be most apt to use such a method.

[1] The mechanics of conception and gestation were not known until fairly recent times (Clarke 1985), and most cultures assumed that sex of the child-to-be could be as readily influenced in utero as prior to conception. Also, in most cultures, including some today, women were generally held responsible for their failure to produce sons, with divorce and remarriage the usual remedy for their husbands.

[2] The reasoning is as follows: since the right testis is usually larger, it is "provided with a warm and generally superior blood supply favoring the projection of male-engendering semen and the left testis was associated with a cold and inferior blood supply producing 'weak' (i.e., female) semen" (Bennett 1983b:1).

[3] Actually, males are already slightly favored by nature, with a 51.4% probability at birth, compared to the 48.6% probability of a female (Glass 1983).

[4] Warren (1985) traces these patterns in detail. My own studies of infant mortality rates in countries with strong son preferences indicate that female infanticide may still be practiced (Chico 1979).

[5] Amniocentesis is a procedure whereby amniotic fluid containing fetal cells is removed from the uterus of the pregnant mother (after the first trimester, when sufficient fluid is present and the fetus is in less danger from the procedure) by means of a long, hollow needle. These cells are then cultured and analyzed microscopically to determine the fetal sex from the chromosome structure. The latter part of the procedure takes several weeks (Warren 1985). Chorionic villi sampling begins with a biopsy (which can be done in the early weeks of pregnancy) of a small sample of the outermost portion of the placenta, which is then treated with chromosome-specific DNA probes for fetal sex determination. The complete procedure takes only a few days (Gosden et al. 1982).

[6] Human ova contain 22 chromosomes plus the female determining X chromosome. Human sperm contain either an X chromosome, which when meeting the X ova will produce a genetic female (XX), or a Y chromosome, which when combined with the ova's X chromosome will result in a genetic male (XY). Since it is only the male who produces both X and Y chromosomes, sperm separation seems a logical strategy.

[7] Sex ratio refers to the number of males per 100 females. A sex ratio is high if there are more males than females, low if there are more females than males. Most demographers conclude that the "natural" sex ratio is really unknown. The primary sex ratio, that which occurs at conception, is believed to be fairly high, with estimates ranging from 120 to 180 males conceived for every 100 fe-

males (see Kellokumpu-Lehtinen and Pelliniemi 1984). Human societies can vary greatly in their overall sex ratios, with high ratios occurring in frontier towns and groups that practice female infanticide and low ratios occurring after large scale warfare (i.e. Europe and Russia after WWII) and in inner city ghettos (Warren 1985). While the sex ratio in most societies still gives males at least a slight edge at birth, by the late teens or early twenties higher male mortality, or probabilities of loss due to disease, war, accidents, suicide, or homicide shifts the advantage to females. This shift in the sex ratio increases in the U.S. until, among the over 75 age group, there are approximately 532 males for every 1,000 females -- thus, a sex ratio of only 53 (Hacker 1983). The sex ratio at birth (the secondary sex ratio) in the U.S. is about 105 for the population as a whole, meaning that 105 boys are born for every 100 girls; though it is only around 102 for Blacks.

[8] In a sex-linked disease, a defective gene is present on an X-chromosome (refer to Figures 5.1 and 5.2). Such traits are generally recessive, meaning that a corresponding normal X chromosome (if the fetus is a female) will mask any deleterious effects of the defective chromosome. But if the fetus is male, the shorter Y-chromosome may not be able to overcome the effects of the defective chromosome on the X-chromosome received from his mother, and a genetic disease, such as hemophilia or Duchenne muscular dystrophy, may become manifest. In X-linked genetic diseases, the mother is the carrier and can pass the defective gene to both sons and daughters, with about half of her sons becoming afflicted, and about half of her daughters becoming "carriers." If the father is himself afflicted, his sons will not be affected with the genetic problem, but all his daughters will be carriers. To date, these particular genetic diseases cannot be detected prenatally, and many women who are carriers have either chosen not to become pregnant at all in order to avoid the possibility of having an afflicted son, or have aborted all male fetuses, approximately half of which would be afflicted, but the other half normal. Sex preselection for females would offer a higher probability of only having daughters, and a lower probability of having to face the issue of aborting a (perhaps unafflicted) son.

[9] The September, 1986, supplemental issue of Fertility and Sterility was devoted to a report by the Committee on Ethics of the American Fertility Society on some of these new reproductive issues.

[10] Parity refers to the numbers of completed pregnancies; a woman at zero parity (sometimes called a nullipara) has had no children yet; at parity one, has had one child, etc.

[11] Sons or Daughters: A Cross-Cultural Survey of Parental Preferences. Beverly Hills: Sage, 1976.

- [12] See Winston 1931; Winston 1932-33; Myers 1949; Thomas 1951; Bernstein 1952.
- [13] See Thomas 1951; Bernstein 1952; Westoff et al. 1963; Loyd and Gray 1969; Bumpass and Westoff 1970; Dawes 1970; Ben-Porath and Welch 1972; Gray 1972; Gray and Morrison 1974; Welch 1974; Wood and Bean 1977.
- [14] See Ayala and Falk 1971; Freedman and Coombs 1974.
- [15] This technique entails a series of paired comparisons over a range of choices from zero to six children, to determine underlying number preference, and choices within each number group as to preferred sex.
- [16] Respondents were also asked to indicate the extent of their support for the women's movement, which may have biased their responses towards answers perceived to be more socially desirable. Also, data from students who said they had children or were currently pregnant were eliminated from the analysis, though the rationale for this was not explained.
- [17] The February, 1987, issue of Family Circle contained a questionnaire about "The private life of the American family," to which nearly 50,000 women responded. When asked whether they would prefer a boy or girl if they could have only one child, "a surprising 60% of our respondents said they would choose a daughter" (Jacoby 1987:12). While this also is a non-random sample, it is at least an interesting indicator of possible changes in attitudes among a certain subset of the population.
- [18] The logic of having no preference yet wanting to sex preselect was not explored by these researchers.
- [19] See Uddenberg et al. (1971), for a study of pregnant Swedish women.
- [20] My own analysis is that the imminence of birth brings considerations of health to the forefront, causing any sex preferences to fade, at least for the moment.
- [21] See Williamson 1976a; Pohlman 1967a and 1967b. Pohlman (1967b:1180) stated that while "other explanations are also possible, including deception of interviewers rather than oneself and exposure to the advantages of a given sex child after having a child of that sex so that parents become genuinely 'sold' on that sex of child through experience. But rationalization (alias reduction in cognitive dissonance) is favored."
- [22] For a criticism of rational action theory, see Gross 1987.

[23] Ten percent of 15-19 year old women become pregnant annually in the U.S. (Hatcher et al. 1988).

[24] In an informal survey I conducted myself to test out some of these variations, I came across a respondent who rank-ordered a three-child family in the way just described. When I asked for the rationale behind the rankings, the respondent stated emphatically, "No way would I want three boys!" From this I inferred that even when an attempt is made to limit respondents to a step-by-step, logical unfolding of number and preference, at least some of them might be "working backwards" from a picture of completed families of various sizes and sex mixes.

[25] In fact, the whole field of reproductive science has suffered from controversy since its modern emergence. That is, controversies not only surround reproductive science as a line of work, but occur within it as well (Clarke, forthcoming).

[26] For a lively review of the literature on the timing of fertilization, see James, 1983. For an overview of research to date on the characteristics of human (and other mammalian) sperm, see the proceedings from the conference on "Prospects for Sexing Mammalian Sperm" held in Denver, 1982 (Amann and Seidel 1982).

[27] The only references given in the Stolkowski and Lorraine article to the potassium, calcium, magnesium, sodium link to sex are those of Stolkowski himself, and I have been unable to find any replication of this dietary link by other researchers. Also, while women who are hypertensive are to be excluded from the male-selection diet, one wonders if the diet itself might precipitate hypertension if adhered to in the time it took before a pregnancy actually occurred, when the diet is then stopped. Women who were not pregnant within six months were to consult their physicians -- meanwhile, they might have been taking the recommended 5000 mg of sodium per day.

[28] Rorvik (1978) also gained notoriety with a book that erroneously claimed success in human cloning (the "twinning" of an individual from a single cell that is made to reproduce itself as if it were a fertilized egg, or zygote).

[29] See Chapters 4 and 5 for quotes from people who have successfully tried this method.

[30] Also see James 1971; Harlap 1979; James 1983.

[31] And simultaneously tested the Whelan/Guerrero method, since if the couples followed the Shettles method but got the opposite of what they wanted, the Guerrero theory would have been supported.

[32] See, for example, Diasio and Glass (1971).

[33] This is usually referred to as the "natural family planning" (NFP) method, which is used either to avoid or to plan a pregnancy and which, as a form of the "rhythm" system, is acceptable to the Catholic church.

[34] That is, the X or Y chromosome might contain genes that activate differences in the sperm cells soon after they are formed, rather than waiting to express themselves sometime after the formation of the zygote.

[35] See the extensive discussion in Amann and Seidel (1981) -- especially Meistrich, Hammerstedt, Gledhill et al., Ericsson and Glass, and Foote.

[36] Clinical success is customarily measured by Y-body fluorescence microscopy, which relies on the fact that human sperm (one of only three mammalian species to do so), when stained with quinacrine hydrochloride, will cause an intense fluorescence of the long arm of the Y-chromosome (Zech 1969). Counting the percentages of such spots after using a sperm separation technique allows quick confirmation of the degree of success of the method. Since the staining method also destroys the sperm, such treated sperm cannot themselves be used in insemination. "True" success of a sperm separation technique must be measured by the sex ratio in actual offspring.

[37] Glaub et al. 1976; David et al. 1977; Ericsson 1978; Glass and Ericsson 1978; Dmowski et al. 1979a and 1979b; Ericsson et al. 1980a and 1980b; Ericsson and Glass 1980; Beernink and Ericsson 1982; Quinlivan et al. 1982; Corson et al. 1984; Univ. of Minn. 1986.

[38] See Appendix B for further details of the Ericsson method.

[39] Evans et al. 1975; Ross et al. 1975.

[40] Failure of the Y chromosome to successfully split at meiosis.

[41] See Martin et al. 1983.

[42] Who was himself licensed to use the Ericsson technique.

[43] An exception here would be those people with an X-linked genetic disease choosing to sex preselect for females.

[44] I review here only the feminist arguments focused explicitly on sex preselection. Wider and conflicting femi-

nist perspectives have addressed many dimensions of reproductive technologies and their development. See, for example, the entire introductory issue of Reproductive and Genetic Engineering, 1:(1)1-124, 1988, for recent concerns and for references to this literature.

[45] Amniocentesis has risks of infection, hemorrhage, inducing labor, and intestinal perforation; also, if results show a fetus unwanted because of genetic problems or because it is the "wrong" sex, there is the risk of late (second trimester) abortion. Present methods of sex-preselection, as well as all other new techniques of assisted reproduction, are risky and/ or burdensome to women far more than they are to men. Most involve some combination of daily charting of ovulatory cycles, pelvic exams, minor or major surgical procedures, artificial insemination, and repeated decision-making at various steps and during many repetitions of the same procedures (Hanmer 1983; Rothman 1986).

[46] Many studies have claimed to show the advantage of being the first-born or only child in a family, and if males were disproportionately among first-borns, it would obviously be to the ultimate disadvantage of females. Ernst and Angst (1983), however, examined some 1,500 studies of birth-order research and concluded that "birth order has not been shown to have any consistent effect upon ability or personality development" and that previous findings of birth order effects were due to "errors in the design of the studies and the analysis of the data," in particular where family size, socioeconomic status, ethnicity, religion, urban versus rural background, and demographic changes were not taken into account (Warren 1985:141).

[47] These issues around coercion are generally not mentioned in discussions of sex preselection in the U.S., but might apply to other societies.

[48] Commodification refers to the tendency to view children as consumer goods -- made to order, free of defects, purchased in the market place (via sex preselection, genetic screening, in vitro or in vivo fertilization, fetal surgery, etc.). While of course valued for their own sakes, issues of budget and lifestyle determine their eventual numbers in any particular family.

[49] It is generally accepted that morphological differences within X- or Y-bearing sperm populations are apt to be at least as great as, and perhaps even greater than, differences between the two (Meistrich 1982). In other words, attempts to separate sperm into male or female populations would probably be no more successful than trying to separate adult human populations into males and females on the basis of height or weight alone.

CHAPTER 3

DATA AND METHODS

In this chapter I describe the nature of my research data and how it was obtained, and discuss the quantitative and qualitative methodologies used for data description and analysis in subsequent chapters.

A. DATA SOURCE: LETTERS OF INQUIRY TO GAMETRICS

In September, 1979, I telephoned Ronald J. Ericsson at Gametrics Limited [1], in Sausalito, California, to inquire about results of his male sex selection technology for a paper I was writing on some of the then-new reproductive techniques (Chico and Hartley 1981). He invited me to come to his office to look through the letters he had received from couples inquiring about his method. Ericsson felt that substantial information of interest to social scientists was given by many of the people writing to him and that he, as a reproductive physiologist, might overlook something impor-

tant. At that time the technology was fairly new. The letters sent to Gametrics contained a variety of information, including writers' offers to be in any type of experimental procedure in their desperate attempts to have sons. Ericsson also noted that almost all the couples inquiring about sex preselection said they already had two or three daughters and wanted one last child, a son. His impression was that very few people were trying to select for a first-born son, contrary to predictions he had seen in the social science literature. Based on my own familiarity with the literature, I agreed that his impressions were contrary to what I would have expected. I wanted to see for myself what these letters actually said.

I soon met with Dr. Ericsson in his Sausalito office where he showed me the letters, some from as early as 1973. As I sorted through them, I realized that these 200+ [2] letters would be an excellent source of data for a research project. Most were sent to Gametrics after the writers had seen an article in a popular magazine or newspaper explaining the method and giving Gametrics' address for further information and a list of clinics in the U.S. where his method was available [3]. Many letters contained pages and pages of personal information such as couples' ages, sex and ages of children they already had, previous attempts -- and failures -- at sex preselection (usually a variation of the Shettles or Guerrero/Whelan method), why they wanted a son so badly, [4] and how they were willing to do almost any-

thing to have a child of the desired sex. I was quite excited about the opportunity to go through the letters and code them systematically.

Dr. Ericsson said he would be pleased if I would take this on as a project, particularly since he was continuing to get many letters in response to an article in Good Housekeeping (1979), which had given the Gametrics address, and expected a very large response to an article in the forthcoming (November, 1979), issue of Parade magazine (found in many Sunday newspapers with, at that time, a circulation of about 20 million). We then agreed that I would take his present files of letters home with me and set up a methodical coding scheme. He would send on other letters as they came in. We also agreed on how I would maintain confidentiality, since this could be considered very sensitive material, certainly very private, to the writers [5].

About 850 people responded to the Parade article over the next several months, and an additional 500 replied to the Good Housekeeping coverage. These articles, in turn, generated many other media inquiries. Dr. Ericsson soon found himself on talk shows, giving newspaper and television news interviews, and being asked for interviews by most of the popular magazines of the day. When asked about the kinds of people interested in using his sex preselection procedure -- who they were, what their reasons were, etc. -- he would refer his questioner to me, since he was no longer

reading or responding to each letter individually. Instead, a secretary sent out a current list of clinics to anyone who wrote for more information. As a result, I too began to interact with media people, mainly to give them updated tallies of who was wanting what, and what their reasons were for wanting sex preselection.

Although I had meanwhile gone on to other projects, I continued to receive bundles of letters forwarded from Gametrics -- sometimes a trickle, sometimes a deluge -- always in response to a recent article or TV special. As of December, 1987 (my cut-off date for computer coding of the data) [6], I had received 4,175 letters, 2,505 of which have since been categorized and coded using a combination of quantitative content analysis methods, and a qualitative grounded theory method (discussed below) [7].

Although the data set spans a fifteen year period, few (4.1%) letters were received before 1979 [8], and most (85.0%) were received between 1979 and 1984 (see Table 3.1). The two years with the biggest volume of mail were 1979 (22.5%) and 1982 (23.1%), when articles about the Ericsson method appeared in both Good Housekeeping and Parade (a Sunday supplement to many newspapers). Both had high-volume circulation and the former appeared to be a magazine that many people saved or passed around to friends or relatives, since references to either of the two articles in it were made as recently as 1987.

Mail has tapered off considerably over the past three years; most of the letters that now arrive are either brief requests for a list of the clinics where the Ericsson method is offered or contain only a self-addressed stamped envelope with no other information. In the earlier years (1978-1982), requests for clinic lists only, with no other information given, represented about 40-50% of the letters received; in the later years (1983 on), these comprised about 60% of the total.

TABLE 3.1 -- NUMBER AND PERCENT OF LETTERS INQUIRING ABOUT SEX PRESELECTION BY YEAR RECEIVED

| YEAR RECEIVED | N= | PERCENT | CUMULATIVE FREQUENCY |
|---------------|---------------|----------------|----------------------|
| 1973 | 1 | .0 | .0 |
| 1974 | 9 | .4 | .4 |
| 1975 | 12 | .5 | .9 |
| 1976 | 40 | 1.6 | 2.5 |
| 1977 | 21 | .8 | 3.3 |
| 1978 | 19 | .8 | 4.1 |
| 1979 | 564 | 22.5 | 26.6 |
| 1980 | 254 | 10.1 | 36.7 |
| 1981 | 89 | 3.6 | 40.3 |
| 1982 | 578 | 23.1 | 63.4 |
| 1983 | 288 | 11.5 | 74.9 |
| 1984 | 357 | 14.3 | 89.1 |
| 1985 | 186 | 7.4 | 96.5 |
| 1986 | 52 | 2.1 | 98.6 |
| 1987 | 35 | 1.4 | 100.0 |
| | ----- 2505 | ----- 100.0 | |

1. Methodological Considerations

There are both problems with and advantages to any analysis of secondary data. The main complaint about such data is that it is not researcher controlled. The data set (here, the letters) was not designed to elicit specific information in a consistent manner, as questionnaires for a survey would be. Many items of interest, usually referred to as "background" or "control" variables (i.e., the independent variables), appear sporadically or are missing entirely. On the other hand, such data can be a rich source for researchers when it contains unsolicited items of information that arise spontaneously from the respondent, rather than being off-the-top-of-the-head responses to questions that have not been clearly thought out or which may have little meaning or salience for respondents.

a) Problematic Data

A major criticism of a non-probability sample such as this is that findings from an analysis of this data cannot be generalized to the larger population, in this case, the childbearing population of the U.S. Another problem is that many theoretically important items (i.e., those that are known to affect fertility decisions) are missing: age, education, religion, race or ethnicity, class, occupation, and income. In fact, the only demographic variables that consistently appear in these letters are sex of respondent (most are women), marital status (since nearly all are

married, this is of little value), and numbers and sexes of children they now have.

As is true for most secondary documentary data, information within each letter varied widely. Some had a bare minimum of analyzable content, while others were quite long and detailed. This presented coding peculiarities, with many "missing" cases and very small numbers of cases distributed along some values of the variables.

Another source of potential difficulty is that these letters were generated in response to different "stimuli" -- an article in print media, a program in broadcast media -- so were apt to have a slightly different "take" on the situation. Media-reported information about sex preselection varied from the very detailed and technical to quite sketchy and vague. Some were fairly matter-of-fact reporting of events, and others were deliberately controversial. Each generate different (and unknown) biases in their audiences; most were operating from slightly (or greatly) different sets of underlying, often implicit, assumptions.

Last, many of the letters received did not have enough content to analyze and were thus excluded from the study. There is no way of knowing if these represented a very different group from those which were included in the analysis.

b) Strengths of the Data

This self-selected population was one which had actually taken an important theoretical step towards linking attitude (sex preference) with behavior (inquiring about the location of the nearest sex preselection clinic as a first step towards actually using this sex preselection method). Since most studies of the relationship between attitudes and behavior have failed to show a significant link between the two (Fishbein and Ajzen 1975), it is both logical and potentially worthwhile to examine a population that is at least at a beginning step in the action process. While we cannot discover anything from this group about the percentages of the larger population that would or would not be likely to actually use sex preselection, we can at least attempt to discover the characteristics of those who were moved to inquire about its potential use for themselves.

Although important demographic variables are missing, the ones remaining are key ones in a decision to sex preselect: how many children couples now have and of what sex. Another advantage is that these letters span fifteen years, and allow differences over time to emerge. Such differences (if any) can be theoretically tied to known societal changes over time as a check on internal consistency and validity.

c) "Non-respondents"

Analytically, one might consider people who requested the lists of centers and who gave no other information as equivalent to the "nonresponse" category in survey research -- people who were randomly chosen to be in the sample, but who failed to actually participate (i.e., they couldn't be found, they refused, they failed to complete a substantial amount of the questionnaire, etc.). The task here is to determine whether or not the nonrespondents are different from the actual participants, and if they do differ, if it is a significant enough difference to make one question the generalizability of the findings to the population from which the sample came (i.e., all the letters received). One possibility is that those who wish to participate in a survey and those who do not represent very different attitudinal groups, particularly if the subject matter is a controversial one. Another possibility, of course, is that they do not differ in any significant way from the actual respondents, so generalization is safe. The problem is that unless a separate study of the nonrespondents is conducted, one never really knows which possibility applies.

In the present case, there are several logical possibilities: (1) the people who asked only for the list of centers and who did not volunteer information about themselves all wanted boys. If they had wanted girls, particularly in the years when female selection was not available, they

would have said so. (2) They all wanted girls, but were reluctant to say so, and would approach the clinic directly as soon as they knew where the nearest one was. (3) They did not differ significantly from the ones who did offer more information. (4) Some variation(s) of the above. My own inclination is to believe that these couples were similar to the content analysis group in the numbers of children they already had, and that most were seeking boys (particularly those writing the earlier letters).

2. Theoretical Considerations

It is useful at this point to consider the data from a somewhat different analytic perspective -- who were the people who did not write to inquire about sex preselection? I have often been struck by how few letters there actually were. The Parade article brought in over 500 letters in a comparatively short period of time -- but both Ericsson and I expected thousands of inquiries [9]. In fourteen years, only 5,000 or so letters were received by Gametrics. Even if that number were doubled to include all the phone calls from people inquiring about the method, or even doubled again to include inquiries made directly to the clinics, that would still be a tiny proportion of the childbearing population, many of whom (as we have seen from the review of the literature) were believed to have strong preferences for the sex of their offspring.

a) The Comparative Case -- People Who Do Not Inquire

Most obviously, those who were satisfied with the present makeup of their family, regardless of sex composition, would not be interested in sex preselection. Whether or not this was a case of "rationalization" (or resignation) as some demographers would have it, is still a matter for speculation. Others, perhaps, were not finished with child-bearing yet, did have a preference, and would trust to nature. At least for awhile. Still other people may have had no preference about their children's gender, whether they were at the beginning or at the end of their family planning. Some people with infertility problems might not have cared at all, or cared only somewhat, about gender, and were more concerned about just being able to have a baby.

Others might not have cared enough about the sex of their offspring to use this method, though they might indeed have had a son or daughter preference. These might have included people who still went to the trouble of finding out where the nearest clinic was, the cost, exact details of what all was involved, etc. The end result of their calculations was that the probabilities of getting what they wanted were just not good enough to justify all the effort necessary to actually participate in the method. Some of the people who did not write in may not have cared enough about sex to consider this method yet. If, after trying on their own they were unable to get a child of the wanted sex,

and if they still want another child, then perhaps they would consider it if there were a clinic near by, if they could afford it, etc.).

Another obvious group who would not have written in are those who had not yet heard or read about this particular method. While it has received widespread media attention over time, the information might not have been of immediate interest to people who were not actually at the stage of planning a child, or might not have been seen or read at all, or might have been overlooked. Perhaps others who did not write in just did not believe the method actually worked. The controversy about various claims of successful sex preselection methods has not been confined to just the clinical literature. Many people are aware that methods have come and gone, most of which give no better than nature's own odds.

Some people might not have been interested in this method because they objected to any one factor, or a combination of factors: it involves artificial insemination, somewhat costly clinic visits over time, and utilizes masturbation as a method of semen collection. Others might not have been interested in a method that only offered improved odds and not a guarantee of success. While a few of these people did write in anyway, I would guess that many more did not.

But considering once again the people who actually did **w r i t e** in to inquire about sex preselection for themselves, **w h a t** might we expect them to be like?

B. HYPOTHESES FROM REVIEW OF THE LITERATURE

My original hypotheses were derived from the review of the literature on sex preferences, though somewhat modified by **a n** initial reading of the first 200 or so letters I **r e c e i v e d** via Dr. Ericsson:

1. A substantial number of letters would be from couples at zero parity who wanted a firstborn son.
2. A significant percentage of those at zero parity would want to use sex preselection because of a sex-linked genetic defect.
3. The majority of couples at parity one would want the opposite to what they now had, although a few might be expected to want an additional son.
4. Most of the people at parity two and higher will have had all one sex and be seeking at least one of the opposite.
5. Many of the people at parities two and higher would also be wanting only one more child, thus seeking a combination of at least one of each sex, but also a small completed family size.
6. People at even parities (2, 4, etc.) with a balance (the same number of sons as daughters) would want to sex preselect for an additional son.
7. Those at higher parities (3+) with an imbalance (more of one sex than another) would want to sex preselect for balance (i.e., not have just one child of one sex).

To test these hypotheses it was most appropriate to quantify the data, since we are here mostly concerned with

percentages and numerical comparisons. If I were to assume that the majority of these hypotheses would indeed be confirmed by the data in the letters, further analysis would not be called for. But since I already had reason to believe that some of them would not hold true, I wanted to further examine the data using a method that would capture the underlying social processes involved in couples' decision making around the use of this sex preselection technique. The two methods used to describe and analyze these letters are content analysis and grounded theory, each of which I now discuss in relation to this data set.

C. CONTENT ANALYSIS

Content analysis [10] is a systematic and objective method for quantifying and analyzing both the actual and the implicit [11] symbolic content of textual material. Basically, the analyst develops a set of categories that represent the theoretical points of a research question, and then codes the data set (documents, speeches, advertisements, letters, etc.) so as to capture and quantify the content of interest. To the extent that the coding categories are clearly formulated and that the rules for determining the different values for each category are nonproblematic, the method is very high in reliability; that is, different coders using the coding scheme will all code the same material the same way, or, the same coder will code the material the same way at different points in time.

Using content analysis in document research is somewhat **analogous** to both attitudinal survey research and to **structured** observation of non-verbal behavior. As in survey **research**, the researcher can begin with formal hypotheses, can **draw** probability samples, and can use computers for data **manipulation** and statistical analysis. And as in an **observational** study, the frequency of mutually exclusive and **collectively** exhaustive pre-determined "behaviors" can be **easily** noted and quantified (Bailey 1987). Once a coding **system** is in place, the analyst examines each document (in **this case**, letters) and transfers onto a coding sheet the **appropriate** numerical data. After all the material is **coded**, data is entered into a computer for subsequent **retrieval** and analysis.

One obstacle I had faced earlier in my graduate career **was** that the content analysis methodology at the time (in **the late 70s**), at least as delineated in the methods texts, **was** much more quantitative and deductive than it now is. A **major text** (Smith 1975:219) suggested that "content analysis **should start** with a theoretical problem rather than with the **already existing data**." I, on the other hand, had **started** with the letters, knowing that they would be an excellent source of information about people who actually were **interested** in sex preselection. Two important steps in the methodology described by Smith were (1) to construct **analytic categories** tailored to the theoretical problem, and (2) **construct precise operational definitions** of those catego-

ries. Both tasks were to be done before examining the data. Holsti's (1969:67) definitive text on content analysis for the social sciences and humanities similarly asserted:

The content analysis approach requires careful formulation of the question in theoretical terms prior to coding and analysis so that the interpretation process is not reduced to finding some explanation which fits the data [12].

1. Strengths of Content Analysis

As mentioned above, a properly conceived and executed content analysis study will generally be high in reliability. With a clear and concise coding scheme, quantification of the text can proceed with little subjective bias entering in on the part of the researcher. Coding (particularly of manifest content) is usually quite straightforward: either an attribute is present, or it is not. If errors are made early on in the coding, they can be corrected; coding, recoding, and re-recoding may be done as often as necessary in an effort to achieve consistency (unlike field research, where little can be done after the fact to strengthen the reliability of any past observation).

Additionally, as a form of "unobtrusive" research, there is no researcher-respondent interaction that can be a source of bias or error (unlike survey, experimental, or field research, nothing the researcher does will have an effect on the respondent).

Content analysis also has the advantage of allowing **study** of processes occurring over time (unlike most other **forms** of research which question or observe respondents in **one** short slice of time). In the present study, the data **spans** a 15-year period.

Last, face validity is usually considered quite high in **some** types of content analysis, particularly those that deal **with** unsolicited, first-person accounts of events, feelings, or **e**xperiences of the writer, especially when the main **purpose** of the research is descriptive (see Bailey 1987; **Babbie** 1989).

2. Weaknesses of Content Analysis

Perhaps the most problematic feature of content analysis of existing documents is the fact that they were **generated** for some purpose other than a research project, and **one** is limited by what they actually contain [13]. People **might** have said a great deal more than they did, or even have said **other** than what they actually did, but all that is available is what they **did** say. This situation is analogous to a survey researcher faced with a great many incomplete questionnaires -- key questions, or even whole pages of questions, might have been left blank.

There is also a question of predictive validity (sometimes referred to as criterion-related validity) [14]. Even if there is a great deal of face validity in the coding

(i.e., the empirical measures fit our common-sense understandings of the concept under investigation), there is no way to really know if what was discovered is a valid measure of what is going on "out there" in people's lives. In the present case, will the people who say they are most interested in sex preselection actually be the ones who show up at the clinic door? People may say (or write) things in a way that puts them in the most favorable light, or may have an unstated (and undiscoverable) agenda that hides, distorts, or otherwise biases their "true" motives, reasons, or behavior [15].

3. Recording Unit and Context Unit

In content analysis, a decision must be made as to the unit of analysis (the recording unit). Will it be a single word? A phrase? A sentence, paragraph, theme, or the entire document? In the present study I used the "phrase" (which can be as short as a word or as long as a sentence), and coded a particular category whenever it appeared. The context unit or case was always the letter itself. Most of the letters in this data set were one-time correspondence. Some, however, were from the same people over time (one person wrote ten letters). In instances of multiple correspondence from the same person (or couple), the letters were filed under one ID code and considered to be a single case. All of these letters were analyzed for content, though only one notation per item was made, even if the same material

appeared more than once. Thus there are a few more letters than there are actual cases.

4. Evolution of the Coding Scheme

As Berelson (1952:147) has noted, "Content analysis stands or falls by its categories." The conceptualization and operationalization of categories appropriate to the research question are of vital importance. The following section briefly describes the categories and the system of coding I used in the analysis of the letters sent to Gamet-**rics** inquiring about sex preselection. A complete rendering of the research account is given in Appendix A.

Content analysts now mostly agree that many, if not most, categories in a given study should emerge from the documents themselves, and not be derived directly from theory. As Bailey (1987:303) pointed out,

Only by letting the categories emerge from the documents to be analyzed can the goals of mutual exclusiveness and exhaustiveness be met. Categories constructed without prior inspection of documents would no doubt exclude many important categories and include many that are superfluous or unnecessary.

In the present case, categories derived solely from the literature would have done exactly what Bailey cautioned against. Based only on the literature, we see that there would have been relatively few categories: parity of the couple, sex composition of the present offspring, sex of offspring desired, and reason for wanting to sex preselect

(*mix* -- the couple wants at least one of each; *balance* -- relatively equal numbers of each are desired; *bias* -- more, or *all*, of one sex is preferred; the couple wants to avoid *passing* on a genetic problem; they want a son to carry on the family name, and/or business; and perhaps a catch-all category of "other"). As the next section illustrates, many other categories were actually used in the coding, very few of which I could have anticipated by relying solely on the literature on sex preference. As far as redundancy is concerned, it quickly became apparent that "sex of offspring desired" was almost completely determined by knowing "sex composition of the present offspring." If a couple had one or more daughters, they were inevitably seeking a son, and vice versa. The only exception to this was for the very few who were seeking sex preselection for genetic reasons (refer to Chapter 5), in which case previous sex composition made no difference (if the husband was afflicted, they wanted a son; if the mother was a carrier, they wanted a daughter; most were at zero parity).

However, coding could have gotten much more complicated had I relied only on content analysis as a research method. Since I had also decided to use the grounded theory method for a more qualitative analysis of the data, I let the content analysis rest on a simpler and mostly quantifiable (i.e., "manifest" content) coding scheme. For example, many letters said something to the effect of "we have two girls, so of course we would like to know more about your method."

It is the "of course" that is interesting here, along with some variants like "naturally..," "so you can see why..," "as I'm sure you can imagine..." In the content analysis coding, I refrained from trying to interpret degrees of meaning in such places, and coded only "have 2 daughters" and "want opposite."

I also decided to keep the coding scheme flexible in order to allow for completely unanticipated categories, especially since the data spanned a fairly long time period. Reading through the first two or three hundred letters gave me a good sense of what was going on in the earlier years, but recent developments might have created new concerns and issues for people interested in sex preselection. While I could have sampled later letters in an attempt to develop a coding scheme, some theoretically interesting, though numerically infrequent, items might still have been missed. It seemed a more efficient use of time to do all the coding at once, and begin new categories at the time they emerged without being concerned with frequencies of occurrence at that point.

I considered coding for the exact magazine article, TV or radio program, or newspaper story that a letter was responding to, but few people gave specific enough information. While some would refer to a particular source, most simply referred to "your program last week" or "a story I read." It is possible to trace some of these to year of

origin, but there were not enough to make coding for that variable worthwhile.

I also considered coding for place of origin of the letter, and in fact did so as the 1979 letters arrived. It quite quickly became obvious, however, that there was little significance to this since most of the letters simply came from the most densely populated states. Within a short time, letters had come in from all 50 states, from Canada and other English-speaking countries, from the Caribbean and Mexico and other countries geographically close to the U.S., and from other foreign countries with known strong son preferences: India, the Middle Eastern nations (except Israel), and Asian countries [16]. These patterns and frequencies have remained consistent over the years.

a) Coding Categories Used in Content Analysis

The main categories are listed here; refer to Appendix A for a more detailed description of each.

1. Identification number and filing category (for physical storage and retrieval of each letter).
3. Year the letter was written: (1973-1987).
4. Number of children a couple now had: 0-9.
5. Sex(es) of children a couple now had (or wanted).
6. Wife's age.
7. Husband's age.
8. Wife's occupation.
9. Husband's occupation.

10. Reasons for wanting to sex preselect (up to three may be coded).
11. Considerations mentioned about the use of sex preselection (two may be coded).
12. Remarks that do not fit into the "reasons" or "considerations" categories (two may be coded).
13. More (additional reasons, considerations, or remarks and/or a letter to be used in the grounded theory analysis).

D. GROUNDED THEORY

One of the more difficult tasks that face qualitative researchers (and the grounded theory analyst in particular) is to describe the methodology to someone unfamiliar with it, particularly "before the fact" of the research. It is one thing to describe how an investigative process unfolded, it is another to attempt the description of events before any of them actually take place [17]. The goal of qualitative analysis is to discover and describe patterns of human interaction in a way that abstracts information from small, seemingly idiosyncratic social settings and generates such information into more formal and comprehensive theories of how, why, and under what circumstances, people behave as they do, and with what consequences. A single doctor-patient encounter may appear on the surface to be almost entirely dependent on the "personalities" of the two people involved. A series of such observations will, however, show very definite commonalities that have little to do with

personality and much more to do with training and perspective, definitions of the situation and shared (or unshared) understandings, implicit and explicit agendas brought to the encounter, differing power relationships, and of course the more commonly understood demographic variables such as gender, age, social class, race/ethnicity, education, etc. (see Amir 1980). Qualitative research assumes that much of social reality is negotiated "on the spot" and that one has to "be there" in order to observe and understand what takes place -- if not physically present, at least intellectually engaged with the interaction processes.

Another emphasis of qualitative work is the assumption that even the simplest appearing social phenomenon is actually quite complex. Unlike researchers using experimental or survey techniques, where one or a very few variables are manipulated or investigated, qualitative researchers attempt to deal with a great many variables simultaneously and in process. That is, rather than holding one variable "constant" while examining its effect on a few other variables (or vice versa), the qualitative investigator tries to make sense of many variables constantly interacting with many other variables which, in the process of that interaction, change and alter the very interactive effects that are currently under investigation.

Grounded theory methodology was developed to both generate and integrate many concepts simultaneously, as a way to

understand and describe the great variation of phenomena that occur in any research setting. While it is most commonly associated with fieldwork and other observational techniques, it is equally appropriate for the examination of historical [18] documents or other secondary -- even quantitative -- data. The purpose of grounded theory is to generate inductive theory from any kind of systematically collected data (Glaser 1978).

1. Strengths of Grounded Theory

In general, grounded theory shares most of the strengths of other qualitative and/or inductive methods. Like field research, it is exceptionally effective in capturing subtleties of attitude and behavior and in examining processes which occur over time. It is considered to be high in validity in that concepts are visibly emergent from and tied to the data in plausible and convincing ways, and are not merely dependent on abstract definition.

Grounded theory emerges directly from data, and all data must fit the ongoing theory. In survey or other quantitative methods, outliers or "irrelevant" bits of data are often discarded in a search for a fit to some previously deduced hypothesis or theory. This is legitimate in an attempt to abstract some "best fitting equation" or statistical measure. But in grounded theory, even one lone, extreme case modifies the emerging theory. Everything must be taken into theoretical account. That is, it is the

theory which is modified, not the data. This makes for robust theory.

2. Weaknesses of Grounded Theory

Perhaps the most common criticisms of qualitative research address questions about reliability and generalizability. In the former case, the question usually posed is, "Would the same results have been obtained from a different researcher?" Qualitative methods are seen to rely perhaps too heavily on subjective impressions and interpretations. The possibility looms large that another investigator with a different set of assumptions might see something quite differently -- not wrongly, necessarily, but differently. This potential problem can be dealt with quite nicely by using a research team instead of a sole investigator (although this was not done in the present project). Therefore, problems of reliability must be addressed in discussions of the findings.

A similar problem arises in terms of generalizability. If the findings rely at least to some degree on the individual researcher's subjectivity, to what extent can the findings be believed to characterize the setting, and to what extent are they merely idiosyncratic interpretations of narrowly viewed events? Even if a team of researchers agrees on their independent findings, to what extent can those findings be expected to apply to very different settings, or even to other similar settings?

3. Initial Steps of Data Collection and Coding

A hallmark of the grounded theory method is that data collection and analysis toward theory generation go hand in hand from the very beginning of the research project. This is unlike content analysis, for instance, where the data can be coded by someone else once an adequate coding scheme is in place, at which point the analyst starts the "real" work. In contrast, the grounded theorist must closely plan and execute the research project with an eye to theory generation from the first steps. In the present instance, being extensively trained in grounded theory methodology [19], I found myself writing "theoretical memos" even as I was organizing the letters preparatory to devising the content analysis codes and well before I actually began grounded theory coding.

As a first step in a grounded theory approach to secondary data, the analyst should read through all of the collected data simply to become familiar with what is there. In order to do this, I referred back to the content analysis category "More" to see which letters I had earmarked for qualitative analysis, and removed all the letters from the files that I was now going to use in this analysis (there were 213 of them, or 8.5% of the total). These letters had been chosen for one or more of the following reasons: they (1) were very typical of the content analysis category; (2) were very articulate and/or lengthy; (3) had vivid, in vivo

[20] codes or imagery; or (4) elaborated on a particular point only briefly mentioned elsewhere. They represented what is called in grounded theory terminology a "theoretical sample." They provided parameters for the variables I was coding for in the content analysis and also introduced new variables not used in the frequency counts. In cases where there were relatively few letters on an important topic, I included all of them. For example, if any mention at all of abortion appeared, the letter was coded for all the content analysis categories applicable, then put aside for the grounded theory coding.

a) Substantive Coding

In the grounded theory method, coding usually begins with a word by word, or line by line examination of the materials, with the purpose of rising above simple discovery of themes (such as would emerge from a content analysis coding) to the discovery of process and the beginnings of analysis. For example, a typical letter might say:

We were planning to use the douche method outlined in Dr. Shettles book, Your Baby's Sex, until we read about your discovery...[we] are quite willing to gamble on trying to get pregnant your way (1-267, 76-77) [21].

A content analysis code might be "were going to use another method" or "heard of another method" and "willing to take a chance/gamble." But a grounded theory code could include "steps in the family planning process" or "dealing with contradictory information" or "help-seeking behavior" or "app-

roaching a gatekeeper," and so on. At the same time one is coding these small bits of data, an idea about some larger process not immediately tied to the data, though perhaps suggested by it, might prompt a memo on the idea (to be kept separate from the coding, but indexed to it). In the above case, the phrase "quite willing to gamble" might inspire a memo on "gambling" that could cover things like odds or stakes, or winning and losing, that may or may not prove useful to the immediate analysis, but which has now created new things for the analyst to look for in the data.

After a great many codes have emerged from the data, a few begin to appear with more and more frequency -- these become the "core" variables or categories. As a core category appears, one then begins to code along all aspects of it, seeking variations in intensity, depth, scope, etc. Once the two or three core categories that explain most of the variation in the data have become apparent, the analyst then moves on to selective coding. The core categories that emerged from these letters are discussed in Chapter 6.

b) Selective Coding

Once the choice has been made as to which two or three categories are central to the present analysis (and one can choose to keep one or two central in the current project, then use another two or three in another project later on), the analyst begins to deliberately link all the other categories and subcategories to the core categories. Instead of

waiting for the links to emerge, they are systematically sought out [22].

E. TRIANGULATION OF METHODS

Smith's (1969) chapter on "Triangulation: The Necessity for Multimethod Approaches," calls on researchers to use multiple methods and multiple investigators in an effort to strengthen both reliability and validity of findings. He criticizes methodologists for the sometimes parochial nature of their work -- for example, choosing one method exclusively because it is the only one they are familiar with, or worse, thinking that one method is clearly superior to all others.

Denzin (1989:244) offers several methods of triangulation, one of which is between- or across-method triangulation. This combines two or more different research strategies in the study of the same empirical units, with the rationale that "the flaws of one method are often the strengths of another, and by combining methods, observers can achieve the best of each while overcoming their unique deficiencies." He asserts that not only does triangulation increase "sophisticated rigor" [23] but that it also calls for researchers to make "their empirical, interpretive schemes as public as possible" (1989:234).

My own extensive training in qualitative methodology had opened up a whole new way of discovering, observing,

recording, and analyzing social processes that I found quite valuable. At the same time, I found that the quantitative research methods that I had employed in the past allowed me to ask different questions about the same research problem -- questions that could not be answered with qualitative methods. But I rarely encountered research in the literature in which both qualitative and quantitative methods had been given equal worth in the research design.

This project was an attempt to integrate both qualitative and quantitative methodology by examining a particular data set with these two very different methods. My basic assumptions were that each method would capture valuable and valid information, each would find something that the other could not, and that the integration of these disparate findings would allow theory-building in a way that neither alone could accomplish.

[1] Ronald J. Ericsson is the president of Gametrics, which holds various patents to the technology he has developed for both human and animal sex preselection.

[2] N=242, 205 of which were usable.

[3] As of June 1979, 6 centers in the U.S. were offering male sex selection and sperm enrichment for male infertility, and 2 more offered the procedure for male fertility only; one overseas clinic, in Cologne, West Germany, was offering both.

[4] Some people were equally desperate to have a daughter. Most of these letters acknowledged the fact that the method did not work for female selection, but were inquiring if research were being done in this area or if they could be directed to someone who was able to select for females using another method.

[5] See Appendix A.

[6] Between January and October of 1988, only thirty or so additional letters were received that would have fit into the content analysis criteria.

[7] Of the remaining 1,670 letters, 1,473 asked only for the list of clinics where the method was available, and had no content worth analyzing; 197 were excluded from the present study because they were not requests for information about personal use of sex preselection (most were inquiries about male infertility, some were from students seeking help with a term paper, and a few were from OB/GYN's and other M.D.'s who wanted information about setting up their own sex preselection clinics).

[8] For use in further analysis, this variable was recoded so that 1973-1978 appears as one category.

[9] This estimate was based on the experiences of the magazine people, who said that such articles often generated hundreds of mailbags worth of responses, and warned us to be ready (and to notify the local postmaster).

[10] It is beyond the scope of this dissertation to enter into a detailed history of this method, which is lengthy, fascinating, and controversial. There are many divergent opinions as to correct methodology and analytic techniques; herein, I simply note what I did and how I did it. The interested reader is referred to Berelson (1952), Holsti (1969), and Weber (1985).

[11] Usually referred to in the content analysis literature as "manifest" and "latent" content. The former is objectively present (or absent); the latter refers to the 'mean-

ings' of communications, and requires interpretation on the part of the researcher.

[12] Methodologists have more recently modified this stance.

[13] Historical research confronts this same problem.

[14] See Carmines and Zeller (1979) for a discussion on assessing reliability and validity.

[15] This propensity, of course, affects all research on human beings.

[16] Fewer than 5% of the total were of foreign origin.

[17] Interested readers are referred to the following works which describe (1) the discovery of the grounded theory method: Barney G. Glaser and Anselm L. Strauss, The Discovery of Grounded Theory: Strategies for Qualitative Research. New York: Aldine, 1967, (2) its amplification: Barney G. Glaser, Theoretical Sensitivity: Advances in the Methodology of Grounded Theory. Mill Valley, Calif.: The Sociology Press, 1978, and (3) a description of how it works in action: Anselm L. Strauss, Qualitative Analysis for Social Scientists. Cambridge: Cambridge University Press, 1987; Kathy Charmaz, "The grounded theory method: an explication and interpretation," in R.M. Emerson (Ed.) Contemporary Field Research. Boston: Little, Brown and Co., 1983.

[18] See, for example, Star (1983), and Clarke (1985).

[19] In a two-year seminar with Barney Glaser, and over a separate four-quarter seminar with Anselm Strauss.

[20] A grounded theory term referring to words or phrases commonly used by the people being studied; such terms often have more "grab" than a similar phrase invented or borrowed from sociological jargon by the researcher.

[21] This citation refers to a letter filed in category 1 (has girls, want boy), ID number 267, letters written in 1976 and in 1977.

[22] These processes will be elaborated on and illustrated in Chapter 7.

[23] This phrase "is intended to describe the work of any and all sociologists who employ multiple methods, seek out diverse empirical sources, and attempt to develop interactionally grounded interpretations" (Denzin 1989:235).

CHAPTER 4

FINDINGS FROM CONTENT ANALYSIS

In this and the following chapter I present the findings from the quantitative analysis of the letters from people who were inquiring about sex preselection. This chapter focuses on the group as a whole (N=2,505) and analyzes the demographics of these letter writers, their reasons for wanting sex preselection, considerations that would affect their decision to actually use it or not, and their remarks about other aspects of sex preselection. The following chapter focuses on specific subgroups: couples with no children; with one child; with two or three children; with four or more children; or with a genetic problem (regardless of family size) and specifically addresses the hypotheses generated in Chapter 3.

Appendix A presents a more complete breakdown of categories, and explains how (and why) recoding for some variables was done. The reader is reminded that while a variety of numbers and per-centages are given in tables throughout this and the following chapter as the most efficient means

of data presentation, these letters consisted only of unsolicited statements, and thus do not reflect what the writer might have said about any particular category had a survey or interview technique been used. Some very small categories are discussed at length, not due to the numbers of people they represent, but because of their theoretical interest.

Where tables show total numbers and percentages, percentages are sometimes slightly greater or less than 100.0% due to rounding. Tables that do not show totals (i.e., "Reasons," "Considerations," and "Remarks") reflect letters that were coded into two or more categories of a variable. In these tables the actual number of such responses is given (as are the corresponding percentages), and within the discussion of each variable I indicate (when it was possible to disaggregate the data) how many couples were actually involved [1].

A. DEMOGRAPHICS

Few demographic variables were obtainable from these letters. Included here are ages and occupations of husbands and wives [2], present parity (numbers of children in the family to date), and sex of children in the present family. These latter two variables are of particular importance, as they appear to explain most of the behavioral intentions around sex preselection of offspring.

1. Present Parity

Parity is one of the most important explanatory variables in this study. It became obvious very early in my examination of these letters (prior to setting up the coding scheme) that most couples already had children who were all the same sex, and that they always wanted to sex preselect for the opposite of what they already had. This early impression was confirmed, as shown in Table 4.1 [3]. While a small percentage (8.2%) of people said they had NO children yet, often one of those spouses did have children from a previous marriage [4].

TABLE 4.1 -- PRESENT PARITY

| Number of Children | Number of Couples | Percent |
|-----------------------|----------------------|---------|
| 0 | 199 | 8.2 |
| 1 | 340 | 14.1 |
| 2 | 1112 | 46.0 |
| 3 | 564 | 23.3 |
| 4 | 156 | 6.4 |
| 5 | 35 | 1.4 |
| 6 | 8 | .3 |
| 7 | 5 | .2 |
| | <hr/> | <hr/> |
| | 2,419* | 99.9 |

*96.8% of the total group reported exact parity; not included are those who said they had "some" children or who did not say whether or not they had children.

Of the 2,220 couples who reported having from 1 to 7 children, the average number of children per couple was 2.1.

2. Present Sex Composition of Family

My earliest coding scheme had two separate variables for sex of children; what people now had, and what they wanted. It quickly became apparent that knowing what people now had was a sufficient predictor for what they wanted, thus only one code was used here. In Table 4.2 -- "Sex of Children Now Have or Want," categories 1 and 3 were coded when the exact number of either was given [5]. Categories 2 or 4 were used for the few letters that mentioned sex, but not number, of present offspring. If the couple had no children yet but did say what they wanted, the codes "Want a Boy," "Want a Girl," or "Want Both" were used. A few letters were in the "Have Both" category, the majority of which were from people who had many of one sex and only one of the other [6].

These nine categories were recoded to eliminate "Have children, sex not stated" and "Don't say what have or want" (both categories accounted for only 1.8% of the total). The remaining categories were recoded into five: "Have boy(s)," "Have girl(s)," "Want boy," "Want girl," and "Have or want both." Table 4.3 shows these recodes. Combining categories 1 and 2 (in Table 4.3), we find that 90.9% of the couples in this study (N=2,237) inquiring about sex preselection already had children of one sex. Of these, over two thirds were daughters. Those who reported having no children yet (categories 3 and 4) mostly wanted sons (136 of 193, or

70.5%). If we were to stop the analysis at this point, we would have good evidence of strong son preference among those seeking sex preselection.

Looking further, however, we can account for at least some of this evident son preference by recalling that when this method was originally publicized, it worked only for male selection. Table 4.4 combines "have girl(s)" with "want boy," "have boy(s)" with "want girl" (all from Table 4.3), and shows these percentages over time. The most interesting (and unexpected) finding here was the dramatic change over time in the percentage of people wanting daughters. In the early years (1973-1982), between seventy and eighty percent of the letters were from couples who had daughters and wanted a son. Beginning in 1983, there were proportionately more requests for female selection. Note that in three of the last four years covered in the study, the percentages of those seeking daughters were actually higher than those who were seeking sons.

TABLE 4.2 -- SEX OF CHILDREN COUPLES EITHER
NOW HAVE OR WANT

| Category | Number | Percent |
|--------------------------------------|------------|-------------|
| 1. HAVE GIRL(S), number stated | 1509 | 60.2 |
| 2. HAVE GIRL(S), number not stated | 26 | 1.0 |
| 3. HAVE BOY(S), number stated | 688 | 27.5 |
| 4. HAVE BOY(S), number not stated | 14 | .6 |
| 5. HAVE BOTH, number stated | 23 | .9 |
| 6. WANT BOTH, have NO children yet | 8 | .3 |
| 7. Have CHILDREN, sex not stated | 2 | .1 |
| 8. WANT BOY, have NONE or don't say | 136 | 5.4 |
| 9. WANT GIRL, have NONE or don't say | 57 | 2.3 |
| 10. DON'T SAY what have OR want | 42 | 1.7 |
| | <hr/> 2505 | <hr/> 100.0 |

TABLE 4.3 -- SEX OF CHILDREN COUPLES NOW
HAVE/WANT (Recoded)

| Category | N | Percent |
|-------------------|------------|-------------|
| 1. Have Girl(s) | 1535 | 62.4 |
| 2. Have Boy(s) | 702 | 28.5 |
| 3. Want Boy | 136 | 5.5 |
| 4. Want Girl | 57 | 2.3 |
| 5. Have/Want Both | 31 | 1.3 |
| | <hr/> 2461 | <hr/> 100.0 |

Excluded are "Have children, sex not stated" (N=2) and "Don't say what have or want" (N=42) [1.8% of total].

TABLE 4.4 -- HAVE GIRL(S) OR WANT BOY,
HAVE BOY(S) OR WANT GIRL,
BY YEAR LETTER RECEIVED

| YEAR | Have girl(s) OR Want boy % | Have boy(s) OR Want girl % |
|-----------|-------------------------------------|-------------------------------------|
| 1973-1978 | 80.2 | 18.8 |
| 1979 | 75.6 | 22.1 |
| 1980 | 73.1 | 26.1 |
| 1981 | 71.9 | 25.8 |
| 1982 | 75.4 | 23.5 |
| 1983 | 64.7 | 34.3 |
| 1984 | 47.7 | 51.2 * |
| 1985 | 54.4 | 43.4 |
| 1986 | 48.0 | 50.0 * |
| 1987 | 45.7 | 45.8 * |

* Year in which letters inquiring about female selection exceeded those inquiring about male selection.

3. Ages and Occupations

Ages and occupations of husband and/or wife were also coded, although the majority of letters did not contain information on either variable. I expected that age would serve as an indicator of internal consistency or validity. One would anticipate, for instance, that husbands would be older than wives, and that ages would be directly correlated with number of children; as the one increased, so would the other. Deviations from this pattern would certainly need to be explained and might call into question whether or not the data set actually generated analyzable patterns.

Coding for occupation was done in hopes that aggregated data could provide a base from which other important variables, such as education and income, could be inferred for the group as a whole.

a) Age of Wife

As shown in Table 4.5, a total of 532 women (21.2%) reported their ages, which ranged from 20 to 45 with a mean of 31.5. Age of wife was directly correlated with number of children -- the older the mother, the more children she had [7].

b) Age of Husband

As shown in Table 4.6, only 9.5% of the letters mentioned husband's age (N=239). Ages ranged from 22 to 58, with a mean of 34.4. Husband's age was correlated with number of children in all but one category -- couples reporting no children yet [8].

TABLE 4.5 -- AGE OF WIFE

| Age | Number | Percent |
|-------|--------|---------|
| 20-24 | 24 | 4.5 |
| 25-29 | 130 | 24.4 |
| 30-34 | 239 | 45.0 |
| 35-39 | 130 | 24.4 |
| 40+ | 9 | 1.7 |
| | <hr/> | <hr/> |
| | 532 | 100.0 |

TABLE 4.6 -- AGE OF HUSBAND

| Age | Number | Percent |
|-------|--------|---------|
| 20-24 | 6 | 2.5 |
| 25-29 | 35 | 14.6 |
| 30-34 | 81 | 33.9 |
| 35-39 | 75 | 31.4 |
| 40-44 | 31 | 13.0 |
| 45+ | 11 | 4.6 |
| | <hr/> | <hr/> |
| | 239 | 100.0 |

c) Occupation of Wife

Only 67 women (2.7%) mentioned their occupation (or status as a housewife or student), and neither this nor "Occupation of Husband" was used in further analysis (see Tables 4.7 and 4.8, respectively). Of interest, however, is the relatively high proportion (46.3%) of these women who are in nursing, medicine, or the allied health professions. My assumption is that these women are more likely than others to both be aware of, and have fewer objections to, using new reproductive technologies.

d) Occupation of Husband

Only 106 letter writers (4.2%) provided information about husband's occupation. As in the case of wife's occupation, there are a disproportionate number of health professionals or scientists (42.4%) either for the same reasons suggested above, or perhaps as an introduction of oneself (or spouse) when writing to a fellow scientist.

TABLE 4.7 -- OCCUPATION OF WIFE

| Category | Number | Percent |
|----------------------------|--------|---------|
| 1. R.N., M.D; other health | 31 | 46.3 |
| 2. Educator | 13 | 19.4 |
| 3. Professional/technical | 8 | 11.9 |
| 4. Other | 8 | 11.9 |
| 5. Housewife or student | 7 | 10.4 |
| | <hr/> | <hr/> |
| | 67 | 99.9 |

TABLE 4.8 -- OCCUPATION OF HUSBAND

| Category | Number | Percent |
|-------------------------------|--------|---------|
| 1. M.D., D.D.S.; other health | 34 | 32.1 |
| 2. Farmer | 14 | 13.2 |
| 3. Self employed | 13 | 12.3 |
| 4. Educator | 11 | 10.4 |
| 5. Scientist, engineer | 11 | 10.4 |
| 6. Manager, professional | 11 | 10.4 |
| 7. Other | 8 | 7.5 |
| 8. Blue collar | 4 | 3.8 |
| | <hr/> | <hr/> |
| | 106 | 100.1 |

B. REASONS, CONSIDERATIONS, AND REMARKS

A cardinal rule of coding in quantitative analysis is that the categories of a variable must be both mutually exclusive and collectively exhaustive. If a variable does not have collectively exhaustive categories, some items may be impossible to code: for instance, if age categories are limited to "18-25" and "26-40," persons under 18 or over 40 cannot be counted. In the content analysis coding used in the present study, the variables for age, occupation, number of children, and sex(es) of children were coded "open" -- that is, the categories themselves were emergent up through the very last letter. Thus, all the categories that were ultimately necessary could be easily included. Only after all the frequencies were tabulated did recoding into fewer categories take place.

To be mutually exclusive, on the other hand, means that an item (word, phrase, piece of information) can go into only one of the categories assigned to that variable.

If one is to break either of these rules of exclusivity or exhaustiveness, one must be prepared to explain why. In the case of the following three variables, "Reasons Couples Wish to Sex Preselect," "Considerations About Sex Preselection," and "Remarks About Sex Preselection" the problem of variables whose categories are not mutually exclusive arises. Indeed, we discover that the variables themselves are likely to overlap.

It will be recalled that the coding categories generated from a review of the literature were somewhat sparse, but that even a cursory examination of the letters revealed many unanticipated items of interest worthy of careful examination. In order to allow as many of these as possible to emerge, yet manage them in some orderly way, I devised these three main variables, then let the categories for each emerge as the coding proceeded. "Reasons" people gave for wanting sex preselection were generally very specific, such as "carry on the family name" or "want at least one of each sex." Since many people mentioned more than one reason yet rarely offered more than three, I allowed three variables here (Why1, Why2, and Why3), all with exactly the same categories [9]. "Considerations" included information that would impinge on the decision to actually use sex preselection or not, such as "infertility problem," or "safety/expense/time." Since relatively few people mentioned more than two considerations, I used only two codes here (Consid1 and Consid2). Under "Remarks" I coded observations such as "husband/wife differ on sex preselection," "own M.D. was/was not helpful," and "desperate." Again, few people made more than two such remarks, so only two were coded (Rem1 and Rem2). Thus, any one letter could be coded for as many as three reasons, two considerations, and two remarks. If more than these were necessary, the variable "More" was coded. More1 was coded when there were more than three reasons, More2 if there were more than two considerations, More3 if

there were more than two remarks [10]. As a result, the following tables are very rich although a bit difficult to interpret; there are numerically more "Reasons," for example, than there are actual letters.

The following three sections describe each category for each of the three variables, and give numbers and percentages for each major code or recode. There are also quotes from some letters as an illustration of a particular category. Unless a quote is quite short, it is likely to illustrate more than one category, so I have selected these quotes to be as short as possible while still getting to the heart of the concern of the letter writer.

1. Reasons Couples Wish to Sex Preselect

There were originally thirty categories for this variable; Table 4.9 shows the logically collapsed categories. Few people actually gave more than one reason -- 11% gave two, and only 1% gave three. Only two people gave more than three reasons (.1%) [11].

TABLE 4.9 -- REASONS COUPLES WISH TO SEX PRESELECT

| Category | N | Percent |
|-------------------------------|------|---------|
| 1. NO reason mentioned | 1486 | 59.3 |
| 2. Want OPPOSITE sex | 468 | 18.7 |
| 3. TRADITIONAL reasons | 145 | 5.8 |
| 4. GENETIC reasons | 119* | 4.8 |
| 5. Family HISTORY | 119 | 4.8 |
| 6. SPOUSE/OTHER prefers | 105 | 4.2 |
| 7. LIMIT number | 102 | 4.1 |
| 8. ALWAYS wanted | 97 | 3.9 |
| 9. Want FIRSTBORN/ONLY | 68 | 2.7 |
| 10. Son/daughter DIED | 51 | 2.0 |
| 11. Want ANOTHER son/daughter | 31 | 1.2 |
| 12. Wife "GIVE" husband a son | 22 | .9 |

* There were 81 (3.2%) couples that reported on a genetic problem; 38 (1.5%) of them additionally stated either that they did not want an afflicted son or they did not want a carrier daughter, thus inflating the total.

a) No Reason Mentioned

"NO" reason was by far the largest category under "reasons for wanting to sex preselect" and at first glance would not appear to explain much. Looking at Table 4.10, however, we see that of the 1,490 couples who mentioned no reason for wanting sex preselection, nearly all (96.6%) reported that they already had children. Only six of these couples (.4%) had no children yet and simply stated their preference for a son or daughter. The other 96.2% had an average of 2.3 children. As the "Profiles" will demonstrate, couples with only one child were seeking a child of the opposite sex; those with two or more children nearly always had same-sexed children and were also seeking one of the opposite sex.

TABLE 4.10 -- PARITY BY "NO REASON" GIVEN FOR
WANTING SEX PRESELECTION

| Children Now Have | "No Reason" N | % |
|----------------------|------------------|-------|
| 0 | 6 | .4 |
| 1 | 195 | 13.6 |
| 2 | 730 | 50.7 |
| 3 | 377 | 26.2 |
| 4 | 111 | 7.7 |
| 5 | 14 | 1.0 |
| 6 | 3 | .2 |
| 7 | 3 | .2 |
| | 1439 | 100.0 |

Couples who give no reason for wanting to use sex preselection had an average of 2.3 children, nearly all same-sexed.

b) Want the Opposite to What Now Have

The next largest category given under "Reasons" was "Want opposite/at least one each." Only people who specifically stated they wanted a boy or girl because they already had the opposite were coded into this category. Table 4.11 compares letters from people who gave "no" reason with those who said they "wanted the opposite" of what they now had. The percentages of each at any parity are strikingly similar, as are the mean number of children for each group (couples with "no" reason had an average of 2.3 children, couples who said they "want the opposite" averaged 2.2). My interpretation is that both subgroups were essentially the same: the majority in each category already had two or more children and simply wanted one more child, but of the opposite sex.

TABLE 4.11 -- PARITY BY "NO REASON GIVEN" AND
"WANT OPPOSITE TO WHAT NOW HAVE"

| Number of Children | NO reason given | | Want OPPOSITE/ at least one each | |
|--------------------------|--------------------|--------------|--|--------------|
| | <u>N</u> | <u>%</u> | <u>N</u> | <u>%</u> |
| 0 | 6 | .4 | 5 | 1.6 |
| 1 | 195 | 13.6 | 53 | 16.9 |
| 2 | 730 | 50.7 | 155 | 49.4 |
| 3 | 377 | 26.2 | 77 | 24.5 |
| 4 | 111 | 7.7 | 15 | 4.8 |
| 5 | 14 | 1.0 | 6 | 1.9 |
| 6 | 3 | .2 | 2 | .6 |
| 7 | 3 | .2 | 1 | .3 |
| | <u>1439</u> | <u>100.0</u> | <u>314</u> | <u>100.0</u> |

"Want opposite" was recoded to include people who specifically stated that they wanted at least one child of each sex, as well as "Have daughters from a previous marriage," "Have sons from a previous marriage," and "Children from a previous marriage, sex(es) not stated." Since the overwhelming majority of the people in these latter categories were couples in which the husband had had all daughters or all sons in a previous marriage and the present wife had had no children yet, and they were attempting to have the opposite of what the husband had before, this was a logical recode [12].

"No reason" and "Want opposite" included over 75% of all the respondents. The remaining categories had relatively small proportions of people in each and are only briefly discussed here. A complete analysis of the more significant of these categories is presented in Chapter 5.

c) Traditional Reasons for Wanting a Son

"Traditional" reasons for wanting a son encompassed several categories which were combined in Table 4.9. One reason commonly given was that of "carrying on the family name" or that the "husband was an only son," which gave even greater urgency to family name issues [13].

Our life ambition is to have one boy offspring to carry on my husband's family name (5-768, 79).

My husband is the only son to his father and his father is the only son to his father. He feels as though he would be putting his father and name

down if he didn't have a son of his own to carry the name on (7-1336, 81).

The majority of these couples (89.6%) already had one or more daughters.

Son preferences explicitly based on ethnicity were also among the traditional reasons given for wanting a son. The 21 people in this category specifically stated that their desire for a son was based on a particular ethnic or cultural mandate [14]. Most of these couples (85.8%) already had daughters. In contrast to those concerned about carrying on the family name, these couples were more likely to say they were "desperate" (9.5% compared to 2.7%). They were also more vehement than other groups about not wanting any more daughters (23.8% compared to only 5.0% in the overall group who said they wanted no more children of the same sex).

My wife and I have been married for over 12 years, during which time we have had three girls. The lack of a male heir in the family, I being the eldest in the family, is creating problems for my wife [this couple is from Africa] (7-1735, 82).

I come from a country that a boy comes first and the girl, who knows. I have two beautiful girls and when I had each one my family and my husband's family felt so sick that I was giving their son girls...I am dying to have a boy just to close their mouths (7-876, 79).

Last among traditional reasons, a small number (N=13) of the letters mentioned "needing a son for the family business." Many of the businesses mentioned had to do with farming:

My husband farms part time. He keeps asking me who is he going to pass his farming experience down to. I ache for him. I looked at his face three times and [saw] such disappointment when the Dr. said, "It's a girl" (7-2907, 84).

d) Have a Sex-Linked Genetic Disease

The 81 (3.2%) letters mentioning any kind of genetic problem at all were coded into the category "genetics" in the variable "Reason." In addition, there were three categories of "Considerations" ("wife a possible or definite carrier," "husband afflicted," "husband a possible or definite carrier") and four categories under "Remarks" which coded more information about specific genetic problems ("Duchenne muscular dystrophy," "hemophilia," "retinitis pigmentosa," and "other genetic disease") [15]. For a complete discussion of couples who were dealing with the problem of possible sex-linked genetic disease transmission to offspring, see "Families With a Sex-Linked Genetic Problem," in Chapter 5.

e) Family History of All One Sex

Most people who mentioned histories of same-sex children in extended families (N=119, 4.8%) seemed to assume that the odds were stacked against them and so were reluctant to try for the preferred sex on their own.

We have two boys and would like a girl. My husband has six boys in his family and he is the first born, so he thinks it would be a miracle for us to have a girl (3-320, 79).

In contrast, a few people had originally believed that such patterns were in their favor, but experience had proved otherwise.

My husband comes from a family of four brothers so we thought it would be easier to have boys, but it doesn't seem that way so far [they have no children, his brothers have had all girls] (11-2, 79).

f) Spouse/Other Prefers a Specific Sex

"Spousal preference" includes "Husband wants a son," "Wife wants a daughter," "Wife wants a son," and "Husband wants a daughter." In contrast with the "Remarks" category "husband and wife disagree," this coding category was used when both partners said they wanted a child of a particular sex, but one was much more emphatic about it than the other. The 105 couples in this category represented 4.2% of the total.

My husband wants a son of his own blood...I personally enjoy my two girls and wouldn't mind a third (7-1451, 81).

My husband has two boys. I have one girl and one boy. My husband would love a little girl. Can you help us? (11-1146, 80).

My husband...is really only going along with this for my sake. He is happy with just having sons. Though I think he would feel just as strongly as I do if we had three girls and no boys (3-966, 80).

My husband and I have perfected (unwittingly) the technique for boy babies, and have three. I have finally talked my husband into having a fourth child if we have a good chance of having a girl (4-1846, 82).

"Spousal preference" was recoded to also include "Other family member wants a son/daughter." While there may have been additional reasons for sex preselection mentioned, often the only reason given was that some family member other than a spouse wanted a child of a specific sex. Some couples were attempting to please an elderly or dying parent or in-law, and some wanted to provide their own children with a sibling of the opposite sex. Yet others wanted to be the ones to provide a child to an extended family that had a history of all one sex.

..One of my parents has been given a year to live -- maybe! It would satisfy his fondest wish if he had a grandson to name after him, or at least a grandchild on the way (13-350, 77).

My father has six granddaughters, no grandsons! He thinks it's a communist conspiracy that he has not had one grandson produced by one of his four children. Wouldn't it be great if the only daughter could produce a glorious grandson when the other brothers couldn't get their act together! (7-3429, 85).

g) Want to Limit Number of Children

Although most couples gave the impression that they wanted just one last child, especially those at higher parities, letters were coded into "Want(ed) to limit number of children" category only if this was specifically stated (N=102, 4.1%).

We are planning on having one more baby within the next year [now have 3 girls] and we would very much like for it to be a boy, because this is all the children we want. I'm planning on having my tubes tied after our next child (2-191, 79).

Couples who had exceeded their original limit were also included in this category.

Our third daughter is almost two months old and she was going to be our last baby, but now we would like to learn more about your method before we make that decision final (2-126, 79).

h) Have "Always" Wanted a Son/Daughter

Stating that either spouse had "always wanted" a child of a particular sex was the only indicator of long-held preference. Although much of the sex preference literature implied that many people do have such deep-seated preferences about the sex of their offspring, only 97 letters could actually be coded into this category (3.9%).

All of my life I have dreamed of having a son and I had hoped that one of my children would be a boy [have 2 daughters] (7-965, 80).

Ever since I was a child myself I have been anticipating and preparing for, collecting clothes and choosing names for the daughter I would have. Not surprisingly, I married into a family that has been all boys for the past two generations. I have two handsome sons but I still want a daughter (9-2749, 84).

i) Want a Firstborn or Only Son/Daughter

According to the literature on sex preselection, "seeking a firstborn son" should have been a key coding category. In these letters however, only 36 couples (1.4%) who had no children yet said they wanted a firstborn son. An in depth discussion of these couples (and of those who

want a firstborn daughter, an only daughter, or an only son) is in the following chapter.

j) A Previous Son/Daughter Died

Thirty-seven couples reported the death of a son (1.5%) and 14 (.6%) that of a daughter. While most wanted a child of the same sex as a sort of "replacement" for the one who died, others wanted one of the opposite sex and specifically said they were not trying to replace the one who had died [16].

We have two growing sons and lost our only daughter. We would like to have the daughter that, in a way, we never really had (10-1373, 81).

We had three boys and three girls. One of our sons was killed in an accident, so right now I have three girls and two boys. We would like to be sure that we could have a girl. We don't want another boy, because we don't want to compete and compare our deceased son's image (14-669, 79).

k) Have Son/Daughter. Want Another

Twenty couples (.8%) wanted an additional son, eleven (.4%) a daughter. These were nearly always couples at higher parities who had only one child of one sex and wanted at least one more. A few letters in this category were from parents with a sex linked genetic disease (see Chapter 5).

l. Wife Wants to "Give" Husband a Son

In all, 22 women used the phrase "I want to give my husband a son." Many of them were second (or third) wives,

where prior wives had produced only daughters. No letters stated that a husband wanted to give his wife either a daughter or a son, or that a wife wanted to give her husband a daughter.

2. Considerations Affecting Decision to Sex Preselect

Whatever the reason for sex preselection, certain considerations will influence the decision to actually employ a sex preselection technique. Such considerations include time, money, energy and a desire to limit total family size. There are also biological or physiological considerations, such as wife's age and history of difficult pregnancies, or infertility or sterility of either partner. And a very important consideration for some couples is that they definitely do not want any more children of the same sex.

There were originally 31 categories for this variable; Table 4.12 shows the nine collapsed categories (for a complete list, refer to Appendix A). Two hundred and thirteen letters mentioned at least two considerations (8.5%), 25 of which (1.0%) gave three or more.

TABLE 4.12 -- CONSIDERATIONS AFFECTING THE
DECISION TO SEX PRESELECT

| Category | N | Percent |
|-----------------------------|------|---------|
| 1. NOTHING mentioned | 1486 | 59.3 |
| 2. ONLY want one more/IF | 543 | 21.7 |
| 3. Mother's AGE/PHYSIOLOGY | 214 | 8.5 |
| 4. DON'T want more SAME sex | 124 | 5.0 |
| 5. SAFETY/EXPENSE/TIME | 98 | 3.9 |
| 6. Wife/husband STERILIZED | 70 | 2.8 |
| 7. INFERTILITY problem | 59 | 2.4 |
| 8. GENETIC problem | 49 | 2.0 |
| 9. Wife is NOW PREGNANT | 16 | .6 |

a) Nothing Mentioned

In three-fifths of the letters, no consideration affecting the decision to sex preselect was mentioned. As with "Reasons," this was the largest category.

b) Only Want One More Child IF...

The second largest category of "Considerations" (N=543, 21.7%) includes "Only want one more child (can have only one more; willing to try one last time)" (N=356, 14.2%), "Considering one more child IF there is a better than 50-50 chance of having one of the desired sex" (N=139, 5.5%), and "Can afford only one more child" (N=48, 1.9%).

We have three daughters and would "try one more time for a boy" if we thought our chances could be better than 50/50 (2-1746, 82).

This category is distinct from "Want to limit number" as discussed above in "Reasons," in that the "Want to limit number" group had usually decided on only two or three children early in the marriage, and clearly did not want to exceed that limit. In the present category couples at both low and high parities are included. Although both groups are similar (and exemplify coding difficulties discussed previously), they were easy to separate in the actual coding.

Letters noting that a couple "can have only one more child," also often mentioned either having had two or more previous C-sections, or needing some sort of surgery on the

reproductive organs, or having another type of medical problem.

Would you please send a clinic list...for us to contact regarding conceiving the child of our chosen sex. I have cervical cancer, and therefore my childbearing years are limited and we are quite interested in seeing someone now (13-3223, 85).

c) Mother's Age or Physiology

Age was a primary consideration for some women, although husband's age was rarely mentioned as a limiting factor. Concern about mother's age was coded only when the letter writer raised this issue (117 [4.7%] women mentioned this, 104 [4.2%] of whom stated their age). Further analysis of these women shows a mean age of 33.9, compared with the overall mean of 31.5. Many women who gave their ages as 35 or older did not mention age as a factor, so were not coded into this category. Some who did mention age-related concerns did not give their chronological age.

I am sure I am not the only woman who wants a girl but keeps on having boys [has 3]. I feel time is running out for me. Doctors seem to be so close to a perfect method for sex selection, yet I don't want to start all over again when I'm in my mid-forties (3-966, 80).

My husband and I have two young sons and my husband has two older sons. We are very interested in having a daughter. We are reaching an age where we are "running out of time." We are willing to be part of an experiment and to travel if necessary (3-1701, 82).

Considerations about physiology included "Wife has had previous C-section(s)" (N=45, 1.8%). Again, this was coded

only when mentioned as a limiting factor.

I have two boys and I had two Caesarians. I would like very much to have a girl. I have

only one chance left, I don't want to blow it (4-2777, 83).

Several women stated they had already had three, four, or even five Caesarians, but were merely mentioning it in passing and neither mentioned nor implied that this would be a limiting factor for them, so were not included in this category.

I have five children, three girls and two boys. I have had all of them C-section. I am on my second marriage...But my problem is I had a tubal ...And my real problem is me and my new husband would love to have another boy! (12-2383, 83).

Difficult previous pregnancies, a history of miscarriages and other medical problems were also mentioned as limiting factors to the number of future pregnancies intended (N=35, 1.4%).

I have two beautiful daughters and we love them dearly, but my husband and I would really like a son also. Because I have had complications with six pregnancies there will only be one more baby, if any (13-1903, 82).

Several letters mentioned that the wife had already had, or was intending to have, amniocentesis (N=17, .7%). Most of these were from women at the high end of the age range, who said they were worried about Down's Syndrome [17] and other chromosomal disorders more prevalent among older mothers. A few also wanted to know fetal sex as well and even said they would abort the "wrong" sex, although most

indicated they would not abort for this reason [18].

I am 37 and my husband is 41 and thus if I became pregnant I would also desire a test for mental retardation and if that were positive I would want an abortion (5-3546, 87).

d) DON'T Want Any More of the Same Sex

Some couples emphatically indicated that they did not want any more children of the same sex (N=124, 5.0%). These people are in a difficult position, since the method is at best 85% successful [19].

I am a mother of four beautiful daughters. Although I have been satisfied with God's wish, my husband has always been desperate for a boy and he still hopes against hope for a son, but I dread another chance in case it's another addition to the four girls we already have (7-3553, 87).

If I knew I could have a girl, I would have another baby. However, I couldn't take the disappointment of a third boy (9-357, 78).

e) Safety/Expense/Time

Considerations of safety, expense, or time were mentioned by only 3.9% of these letter writers (N=98). When safety was mentioned it was often in a somewhat offhand manner, usually in terms of risk to the fetus, and/or risk to the mother-to-be from the sex preselection procedure itself. Often people just said "of course, safety is a primary concern." Expense referred to the cost of the procedure itself, or the costs associated with traveling to the clinic several times. Sometimes people stated only that

"money will be a major factor in our decision [20]." Time, distance to clinic referred to the necessity of using vacation time (or taking an unpaid leave) for oneself, and/or spouse and perhaps travelling to a distant clinic several times.

I'd rather do this whole process in my home town [if there is a clinic there], rather than traveling from southern California to Sausalito. That way we could avoid my husband's absence from work, having to guess time of ovulation, the expenses and problems of motels and babysitters in a strange town, and a mad dash up California (5-328, 76).

f) Wife or Husband Has Been Sterilized

Most of the 70 couples (2.8%) mentioning that one partner had been sterilized saw it as a definite problem and were aware that either a reversal or donor insemination would be needed.

I am the mother of four boys. I had a tubal ligation right after my fourth child was born. I have always had an overwhelming desire to have a girl. I can't get this out of my mind...I'm 34 years of age and am seriously considering a tubal reversal so I can conceive again, but I'm doing this only to have a girl baby (12-2974, 84).

I am also in need of a reverse sterilization operation...My tubes were tied after the birth of our second daughter because we have strong feelings about raising three children of the same sex. At that time your preselection technique was not publicized. We realize there are no guarantees...(12-1005, 80).

Sometimes, however, people were not quite sure if this even was a problem:

We have six normal, healthy sons. But we're unsuccessful in having a daughter, which we would

like very much to have...I had a tubal after number six, will that cause a problem? Does it matter? (12-1502, 82).

In the case of the husband's sterilization, while people often mentioned that donor insemination would be needed, others were inquiring if sperm could somehow be "withdrawn" from the husband and used in artificial insemination (along with sex preselection):

Is there any procedure, experimental or otherwise, by which sperm can be withdrawn from a man who has had a vasectomy and used to artificially inseminate his wife? (12-1032, 79).

If the wife was the one who had been sterilized, this was sometimes not recognized as a barrier because of the mistaken belief that "artificial insemination" was an option that could bypass the prior sterilization [21].

Those who intended to have (or had already had) a reversal constituted a small group (N=13 .5%), but one which showed great determination. Both men and women were in this category.

I will be having surgery in one month to reverse a tubal ligation which I had done nine years ago. My husband and I have three daughters and want a son badly (12-2217, 83).

Rarely was the possibility expressed that a reversal might not be successful -- or subsequent sex preselection.

g) Infertility Problem

There were 59 couples (2.4%) who reported an infertility problem but who also wanted to sex preselect. Some

couples had a known male factor infertility problem and realized the need for artificial insemination with donor sperm (AID).

My two daughters were both AID babies. Since I have to have artificial insemination anyway, it would be nice to have better than a 50-50 chance for baby #3 to be a boy (13-649, 79).

As of now I have two boys via artificial insemination (my husband is sterile), and I'm interested in increasing my chances of having a girl (13-720, 79) [22].

Sometimes it was the wife who had the infertility problem.

I do not become pregnant easily. It took seven years with my first daughter and three years with my second. Both times were in between tests, drugs and treatments through my infertility specialist...He has never been able to pinpoint a cause for my infertility (13-31, 79).

In a few cases, the letter writer mentioned an infertility problem but did not specify which spouse was affected. This category also included couples with no known fertility problem but who had still been unable to conceive.

[Had been trying to get pregnant for nearly two years] I am 35 with no previous marriage, no previous pregnancies, miscarriages or abortions. I have not tried to become pregnant until I was married. I would like to do so before I am too old to safely carry a baby through a normal pregnancy...I had a hysterosalpingography to check my tubes; I was advised that they were fine. My husband was checked for a sperm count...and was advised that everything was fine. For the last four months I have been taking Clomid. I am still not pregnant and would love to have a baby and a boy if possible (13-3417, 85).

Five letters mentioned the necessity of a donor egg or a surrogate mother in addition to sex preselection. These women were aware of physiological deficiencies and how to work around them; some had lost their ovaries, others had had hysterectomies.

My husband and I are interested in the surrogate parenting procedure. We have two daughters and were hoping to have a son...I am no longer able to have children. I had complications with my last birth and a hysterectomy was needed (13-1244, 80).

Another five said they would need in vitro fertilization. These were mostly women who had tubal ligations or otherwise damaged fallopian tubes.

I had a tubal ligation 3 years ago and now regret this move and wish to conceive a child (with preference towards a female). My husband would like a daughter also and would support using this method. Is it possible to use this method along with in vitro fertilization? (12-3226, 85).

h) Genetic Problem

Two considerations appeared in the "genetic problems" category; the wife was (or might be) a carrier of a genetic disease (N=42, 1.7%), or the husband was already afflicted with one (N=6, .2%). Additionally, one letter claimed that the husband was (or might be) a carrier. See Chapter 5 "Families With a Sex-Linked Genetic Problem" for further analysis of these considerations.

i) Wife is Now Pregnant

Sixteen letters mentioned that the wife was now pregnant (.6%). Most of these couples were at early stages in their family planning and sought information in case the baby was not the sex they wanted. In this case the next pregnancy might be a sex preselected one.

My wife is pregnant right now and we definitely agreed on having a boy and one girl. We might decide to make use of your method (11-764, 79).

At present I am pregnant with my second child, a girl. My first child is also a girl. I am going to be 34 and I voluntarily asked to have an amniocentesis test done for the primary purpose of determining whether or not the fetus has Down's syndrome or spina bifida -- the test showed the fetus was okay. Please send me a list of the centers (1-2339, 83).

3. Remarks About Sex Preselection

"Remarks" was a residual category which included statements of intensity of the desire to sex preselect, comments about whether the couples' own doctor had been helpful or not, husband/wife differences in the desire to sex preselect, and a wide assortment of other comments that regularly appeared. Because of the variety and uniqueness of many of these remarks, collapsing categories was more problematic. Therefore, the number of recoded categories in Table 4.13 remains large, and the proportions within some are quite small. For a listing of the original 27 categories here, see Appendix A. Two hundred and sixty four letters con-

TABLE 4.13 -- ADDITIONAL REMARKS MADE IN LETTERS

| Category | N | Percent |
|------------------------------------|------|---------|
| 1. NO remark made | 1136 | 45.3 |
| 2. Want "VERY MUCH" | 659 | 26.3 |
| 3. DESPERATE; "try anything" | 286 | 11.4 |
| 4. "INCREASE" the odds | 244 | 9.7 |
| 5. Tried ANOTHER METHOD | 94 | 3.8 |
| 6. Want to "COMPLETE FAMILY" | 93 | 3.7 |
| 7. GENETIC problem | 72 | 2.9 |
| 8. Own MD was/was not HELPFUL | 63 | 2.5 |
| 9. STERILIZED, THEREFORE want AI* | 37 | 1.5 |
| 10. Husband/wife DIFFER | 20 | .8 |
| 11. DON'T want Ericsson method | 18 | .7 |
| 12. Would NOT ABORT "wrong" sex | 13 | .5 |
| 13. Wouldn't TRADE | 13 | .5 |
| 14. WANT to preselect for TWINS | 12 | .5 |
| 15. Use "WASTE" filtrate for girls | 6 | .2 |
| 16. SINGLE WOMAN | 3 | .1 |

a) NO Remarks

"NO Remarks" is the largest category for this variable, accounting for nearly half the respondents. Recall that nearly sixty percent of the letter writers gave "No Reasons," and the same percentage of people gave "No Considerations." Further analysis showed that 15.4% (N=385) of the 2,505 people in this study fell into all three categories, that is, gave neither reasons or considerations about sex preselection, nor made any remarks. All, however, averaged two or more children of the same sex.

b) Want Son/Daughter "Very Much"

Over a fourth (N=1,136) of all writers said they wanted a son or daughter "very much," or that they would "love to have" one, or were "very interested" in sex preselection. While these people are not desperate, they do appear to have more than a passing interest in sex preselection [23]. Some of these phrases have appeared in previous quotes; the letters quoted here are typical of this substantial group.

My physician husband and I have four girls and one boy and are interested in having one more boy...We would prefer not to rely on abortion to obtain another son. We are not desperate, but interested (5-814, 79).

I am the healthy mother of two healthy sons. While delighted to have my boys, I would dearly love to add a daughter to my family (9-3557, 87).

c) Desperate

Among those in the category "Desperate" were those who actually used the word desperate (N=135, 5.4%). Additional indicators of desperation included "would go anywhere; would try anything including volunteering for an experimental procedure; money was not a consideration; and/or would not trust fate again" (N=92, 3.7%). Some of these people have been quoted previously. A few sound very desperate indeed:

My wife and I have five girls, and she desperately wants a boy child, so much so, that she is constantly under medical care for nervous breakdowns which I am sure are brought about by her great need for a boy. Although I feel personally that five children are quite enough, I would do anything to save my wife's sanity which I must stress is very near to breaking point (1-264, 76).

I have given some thought to having a fourth child. But I definitely want it to be a boy, or there would be no sense to me having another child. I would be desperate if it were another girl and my life wouldn't be fulfilled. It might sound crazy, but some things in life are just more important to some people than others (2-528, 79).

My three sons are very bright and talented children, I love them very much. My husband and I know we are lucky to have such good kids, yet it doesn't stop me from longing for a little girl. I will go anywhere, try any method that might help, and pay whatever the cost may be. Though we are not wealthy people, it is that important to me (3-966, 80).

Another indicator of desperation came from couples who said they would (or did) abort a fetus of the "wrong" sex (N=14, .6%), or who said they might do so (N=3, .1%).

I would like very much to have a baby boy. Last year I even had an abortion as soon as we found out from the test that it would be a girl (5-222, 79).

I have three boys and want a girl desperately. I am currently pregnant and am undergoing an amniocentesis next month. If it is a boy I intend to abort (5-837, 79).

My husband and I have three sons and desperately want a girl to complete our family...we are willing to try anything that may increase our chances of having a girl. We have arranged for an amniocentesis and are thinking of aborting if it proves to be another boy (5-203, 79).

d) Want to "Increase the Odds"

Many people (N=162, 6.5%) mentioned wanting to "increase" (or "tilt," "better," or "improve" the odds of having a son or a daughter). Some (N=82, 3.3%) said they knew there was "no guarantee" that this method would give them what they wanted, and that "more of the same" would be acceptable [24].

We certainly realize that nobody is guaranteeing us a boy, but anything to increase our chances is worth a try (1-85, 79).

We both work and are willing to make some sacrifices in order to better our chances of conceiving a girl. We realize there are no guarantees. We are just seeking a way to increase the odds in our favor (3-1135, 80).

These are the best clinic candidates -- ones who want another child, even if it is the "wrong" sex.

e) Tried/Now Trying Sex Preselection

Eighty-four couples mentioned having previously tried another method of sex preselection (3.4%). They usually referred specifically to either the Shettles or the Whelan methods, or mentioned some combination of wife's basal tem-

perature, timing of ovulation, or acid/vinegar douche. There was also an occasional mention of the "diet" method. Some couples had tried these methods more than once, some from the very first pregnancy (and not all had been trying for sons) [25].

I've tried the Shettles method twice and now have three girls (2-1150, 80).

We put Shettles to action. We did everything it said to do for wanting a girl. That's when we had our third son (3-3317, 85).

We would very much like to have a daughter, having born a wonderful son...actually, we were hoping for a girl the first time and attempted to use the Shettles method of timing conception (11-2476, 83).

Some people realized that Shettles and Whelan claimed different results with essentially the same method and were understandably confused by this. This often led to an inquiry about which method was "best," particularly if they did not want to use the Ericsson method. Also included in this category was "Have done, or are now in the process of doing, the Ericsson method." Although only ten couples reported this, it does show an important link between intention and action.

f) Want to "Complete Our Family"

Ninety-three letters mentioned wanting a son or daughter to "complete" the existing family (3.7%).

After our second son we stopped having children because we wanted a daughter and were afraid if we had any more we would have another boy. Well, we waited seven years and had another boy. We

love them dearly. But it would be nice to have a daughter, then our little family would be complete (4-2249, 83).

Every family we associate with seems so blessed, they have sons and daughters. We both hurt inside; it feels as if our son is here, we only have to let him out. I guess what I'm saying is our wonderful family is not complete yet until we have him (1-1155, 80).

It is interesting to note that a family of two parents and several children can be considered incomplete.

g) Own M.D. Was/Was Not Helpful

"Not helpful" was coded for the 42 couples (1.7%) who mentioned that their own doctor was negative about the very idea of sex preselection, or had said that no method could even improve the odds.

My husband and I would like to have only one child and would like to have the child be a boy. The doctors in this area that I have discussed this with feel that we are being very selfish and that maybe we should consider not having any (11-1718, 82).

I have read extensively about sex selection in what material I could find and have asked several obstetricians if they would guide me in using a temperature chart, ovulation timing, etc. in trying to increase our chances in conceiving a boy this time. I have met with negative reactions and condescending lectures. In fact I have been made to feel like an ungrateful mother for even considering such a thing (2-1590, 82).

"Was helpful" included physicians who gave their patient the Gametrics address, and/or wrote in behalf of their patient, or wanted to learn how to do the method themselves, or were willing to do whatever necessary to help the couple if they went through the sex preselection process (N=21,

.8%). A letter was coded into this category even if the M.D. suggested a method (usually Shettles) that had not been shown to be effective.

We had discussed this with my gynecologist after the birth of our second son...He suggested that we try the Ericsson method (he does not do it, but he said he will be glad to follow my pregnancy all the way through after whatever procedure is necessary) (4-3236, 85).

[From an OB/GYN] I have a patient who currently has three healthy little girls and would like to try one more time...to conceive a little boy... both she and I would be interested in hearing from you further...(1-2767, 83).

The "not helpful" category tended to appear more frequently in the earlier years, with 83% arriving prior to 1984. The "was helpful" letters were more common in later years, with more than half arriving in 1984 and thereafter. This appears to indicate a growing familiarity with, and acceptance of, this method by clinicians.

h) Sterilized. THEREFORE Want Artificial Insemination

Thirty-seven spouses (1.5%) who reported that they or their partners had been sterilized hoped that "artificial insemination" would be a process that could somehow bypass a vasectomy or a tubal ligation [26].

I am a 33 year old woman who has given birth to four daughters. After my fourth daughter I had an operation for sterilization. My tubes were cut. Do you think there is any chance I could have another baby (a boy), even though I was sterilized, with the conception by artificial insemination program you have? (12-131, 79).

My husband and I have two girls. We decided only to have two children no matter what sex. I had a laparoscopy technique after our second girl...We would like to know if it is possible for us to have artificial insemination and to be able to determine the sex (12-553, 79).

This and other misunderstandings about reproductive anatomy and physiology often serve as hidden barriers -- not only for this method, but for other reproductive decisions [27].

i) Husband/Wife Differ on Sex Preselection

Husband-wife agreement is a critical issue, since the whole arena on negotiation around sex preselection (and most other fertility decisions) has neither been studied nor often even raised as an issue. Twenty letters (.8%) were from couples where disagreement was obvious. This ranged from a marked lack of enthusiasm to actual refusal to participate.

My husband feels happy having the two little girls, I think the reason being that he comes from a big family of both brothers and sisters. But myself I feel that my family is incomplete without having a little boy (7-3497, 86).

I am the mother of three boys and needless to say I would really like a daughter. My husband is perfectly content with our present family. I would like to try just one more time. But all the doctors I talk to just smile and say I should be happy with what I have...I know my husband would never go for artificial insemination (3-135, 79).

For 16 years I have wanted a son, but my husband won't try again...he said if we had another baby it would be a girl, so he won't try (1-629, 79).

Since the Ericsson method requires a great deal of cooperation and active participation from both partners, couples

who wish to attempt it must reach an agreement satisfactory to both (this will be discussed further in Chapters 6 and 7).

j) Don't Want the Ericsson Method

A very few people (N=18, .7%) were inquiring about a "do-it-at-home method that really works." These letter writers either stated that they did not want the Ericsson method (though most did not say why) or that they didn't think they would be able to afford it.

My husband and I have a son. We would like a daughter to complete our family. We cannot afford artificial insemination. We would like to try for a daughter in the privacy of our own home (17-3544, 87).

k. Would NOT Abort the "Wrong" Sex

Women who said they would not abort a fetus of the "wrong" sex included those who were about to undergo amniocentesis and who had already made the decision not to abort for "wrong" sex, and those who had found out the sex in a previous pregnancy but who did not abort even though they had wanted a child of the other sex. This category also included those who said they had thought the matter over and knew they could not abort for the "wrong" sex. There were thirteen women in this category (.5%).

I would never have an abortion just because the sex of the child wasn't what we really wanted. No matter if it meant we wouldn't get the baby boy we wanted. I would go ahead and have another beautiful baby girl [now have 3] if that was what was intended for us to have (5-544, 79).

We have two very beautiful and wonderful girls but no boys. There has been no boy to carry on the family name and we do not wish to have more than three children...I am not interested in the method of selective abortion, I could never end a life (5-574, 79).

As the mother of two boys I am interested in having a girl, and I am not in favor of selective abortion (5-673, 79).

Presently we have three daughters and would like a son. We don't believe in abortion, thus we are very interested in your method of sex preselection (5-871, 79).

The majority of letters that mentioned abortion (pro or con) were in response to an early article in which several methods of sex selection were discussed, including amniocentesis and abortion for the "wrong" sex (Parade 1979).

1. Other Remarks

(1) Thirteen letters (.5%) mentioned that the couple "wouldn't trade" their daughters (or sons) for anything, but would certainly appreciate a son (or daughter). Of course, you cannot trade your children, but what an interesting and logical solution...

I have three lovely daughters and would not trade one of them for anything in the world, but I would love to have a boy (1-1182, 80).

(2) Twelve women (.5%) wanted to preselect for twins as well as sex. For various reasons, these women only wanted to go through one (or one more) pregnancy yet wanted more than one child [28].

Would it be possible to select twins by this method? I am the mother of two children, a boy and

a girl. I would like to have another set of a boy and a girl (14-1684, 82).

3) Six women (.2%) asked why the "waste filtrate" from sperm separation couldn't be used to select for girls, it would contain a high percentage of X-sperm (these wrote before daughter selection was available). Many media articles or presentations either didn't mention or glossed over, the answer to this, which otherwise seem a legitimate question. Some letter writers read that they were pointing out the obvious, though others said they might have helped to further the research by pointing out that not everyone wanted male selection. A few said that perhaps sexism or some other sinister cause might be the reason for lack of interest in female preselection

I have difficulty understanding why this procedure [female selection] is not being performed after four years of clinical practice of male sperm separation. It seems too obvious that once the male sperm has been separated out, you have simultaneously separated out the female sperm... I find it disturbing that female sperm separation is not available. I would think it to be as highly profitable as the male producing procedure [this woman wrote 7 letters between 1978 and 1981] (3-977, 81).

4) A small, but nonetheless interesting, category consisted of women who were single, and who wanted sex selection using donor sperm (N=6, .2%).

I am single. I have wanted to have children for a long time and have been waiting for the right opportunity. Since my biological clock is run-

ning out I decided to become a single parent by artificial insemination [wants a girl] (11-2407, 83).

I am single...In about two years I plan on having artificial insemination...My preference for my baby is to have a girl (11-2922, 84).

C. SUMMARY

The vast majority of these letter-writers were people who had already had two or more children of the same sex, and who now wanted to complete their childbearing by having just one more addition to the family -- a child of the opposite sex. While many reasons and justifications were offered for the sex preference, the presence of same-sex children in the family was the main impetus for action: finding out more about the possibility of sex preselection for themselves.

Couples," "letter-writers", "letters," and "people" used interchangeably and are generally synonymous.

"Husband" and "wife" are used here for convenience; couples are not married, and some letter writers are men or women.

Of the 2,505 letters reported on here, 2,419 (96.6%) mentioned whether the couple did or did not have children. Note that most (83.4%) had from one to three children (16).

See "Families With No Children" in Chapter 5 for further analysis of this group.

Note that 87.7% of the total falls into these two series.

See "Families with Four or More Children" and "Families with Genetic Problem" in Chapter 5.

See Table 5.5.

"Couples With No Children" in Chapter 5 explains this category.

Refer to appendix A for the 30 unrecoded categories.

Only 56 letters (2.2%) were coded into any category of "Genetic Problem".

For a complete list of the emergent categories and the corresponding frequencies and percentages for each of the variables, refer to Appendix A.

Chapter 5 discusses these couples further.

There were 111 couples (4.4%) who said (or implied) they needed a son to carry on the family name.

I was at first inclined to include letters from people where I could infer an ethnic preference, but I resisted a strong temptation. These would have included letters from people (often men) whose native language was obviously non-English, and who had last names that were typical of Western, Eastern, Asian, or Indian cultures where I already knew there was a strong son preference.

These eight categories describing genetic concerns were distributed among the three major coding variables as a good example of the coding problems around mutual exclusivity discussed in Chapter 3.

[16] See Chapter 6 for a discussion of those who had lost a child to a genetic disease and who therefore did not want another of the same sex.

[17] Also appearing in the literature as Down or Downs Syndrome, or trisomy 21; caused by faulty replication of chromosome 21 and characterized by mental retardation and various physical malformations.

[18] See "Remarks" for a discussion of abortion for "wrong" sex.

[19] And at least some of the Gametrics centers will not accept clients who are not willing to welcome a child of either sex (U Minn 1986).

[20] My sense is that when people were mentioning cost as a factor, they were not thinking in terms of the post-partum costs of raising a child, but only of the cost of using this method. If they specifically mentioned limited resources in terms of "we can only afford one more child" they were instead coded into category two.

[21] See "Remarks" for a discussion of these couples.

[22] Since a version of the Ericsson method is used for male infertility, many people wrote in specifically asking about this. Since most of these were not concerned with the sex of a child, but only that they be able to have one -- regardless of sex -- these couples were excluded from the present study.

[23] This and "desperation" are the only measures of intensity I coded.

[24] Some letters included both phrases, and were coded for each.

[25] I note here that in a future study I would code at which pregnancy (or pregnancies) couples had used these methods, as this would distinguish people who had tried to preselect for a firstborn from those who were attempting to select for a second or later born.

[26] If people mentioned that they wanted sex preselection in addition to AID and/or sterilization reversal, they were not coded into this category.

[27] See Chico (1988) for a discussion of some of these problematic understandings.

[28] None mentioned the higher risks and uncomfortable nature of a multiple pregnancy.

CHAPTER 5

PROFILES OF FAMILIES WHO WISH TO SEX PRESELECT

While the overall statistics generated from the content analysis provided interesting and useful information, a different "cut" through the data allowed particular clusterings of variables to emerge, which in turn explained much of the variation in the data. In the following sections I first compare families with different numbers of children: none, one, two or three, and four or more. As Table 5.1 shows, nearly 97% (N=2,419) of all couples in this study were included in these first four profiles. Not included in the profile groups were couples who reported having "some" children or who failed to state whether or not they had children (refer to Table 4.1 "Present Parity").

I then analyze separately the small group of families (3.2% of the total) with a sex-linked genetic problem, who in this study had from zero to three children. Last, I review the hypotheses proposed in Chapter 3 and discuss the degree to which they are supported or disconfirmed.

TABLE 5.1 -- NUMBER AND PERCENT OF COUPLES
IN FAMILY PROFILES
COMPARED TO PERCENT OF COUPLES
IN TOTAL GROUP

| PROFILE GROUP | NUMBER OF COUPLES IN PROFILE GROUP | PERCENT IN PROFILE GROUP | PERCENT OF TOTAL GROUP |
|---------------------|--|-----------------------------------|---------------------------------|
| ----- | ----- | ----- | ----- |
| NO CHILDREN | 199 | 8.2 | (7.9) |
| ONE CHILD | 340 | 14.1 | (13.6) |
| 2-3 CHILDREN | 1676 | 69.3 | (66.9) |
| 4+ CHILDREN | 204 | 8.4 | (8.1) |
| | ----- | ----- | ----- |
| | 2419 | 100.0 | (96.6) |
| GENETIC PROBLEM | 81* | | (3.2) |

* Families with genetic problems have from 0-3 children.

A. THE FAMILY WITH TWO OR THREE CHILDREN

Nearly seventy percent of the letters in this data set came from couples with two or three children, thus the overall statistics were heavily weighted by this group. Since they represented such a large percentage of the letters received, I discuss them first. Letters were received from 1,112 couples with two children, and from 564 couples with three for a total of 1,676, which represented 69.3% of the total number of letters received. Analysis of these two parities showed little difference between them, thus they were combined.

Table 5.2 shows the profile groups by the sex of children a couple had or wanted. In the 2-3 child family, all but one couple reported on the sex of children they now had. Of the 1,675 couples who did so report, 99.4% had either all girls (67.6%) or all boys (31.8%). Only ten couples (.6%) said they already had a child of each sex. As shown in Table 5.3, couples with 2-3 children were more likely than the other groups profiled in this chapter to not give a reason for inquiring about sex preselection. Since the overwhelming majority had same-sexed children, we can safely assume that this was the reason, although unstated (as noted in Chapter 4).

TABLE 5.2 -- PROFILE GROUPS BY PERCENT WHO INDICATE
SEX OF CHILD(REN) NOW HAVE (OR WANT)

| PROFILE | HAVE BOY(S) | HAVE GIRL(S) | WANT BOY | WANT GIRL |
|-----------------|----------------|-----------------|-------------|--------------|
| NO CHILDREN | | | 68.4 | 26.8 |
| ONE CHILD | 26.5 | 73.2 | | |
| 2-3 CHILDREN | 31.8 | 67.6 | | |
| 4+ CHILDREN | 30.9 | 62.7 | | |
| GENETIC PROBLEM | 28.1 | 18.8 | 7.8 | 42.2 |
| TOTAL GROUP | (28.5) | (62.4) | (5.5) | (2.3) |

TABLE 5.3 -- PROFILE GROUP BY PERCENT WHO GAVE
"NO" REASONS, CONSIDERATIONS, OR REMARKS

| PROFILE | "NO" REASON | "NO" CONSIDER- ATION | "NO" REMARK |
|-----------------|----------------|----------------------------|----------------|
| NO CHILDREN | 5.0 | 48.2 | 47.7 |
| ONE CHILD | 57.4 | 50.3 | 52.4 |
| 2-3 CHILDREN | 66.1 | 61.6 | 43.8 |
| 4+ CHILDREN | 64.2 | 67.6 | 41.2 |
| GENETIC PROBLEM | 0* | 19.8 | 11.1 |
| TOTAL GROUP | (59.3) | (59.3) | (45.3) |

* By definition, all who were in this group gave "genetic problem" as the reason for wanting sex preselection.

B. THE FAMILY WITH FOUR OR MORE CHILDREN

As shown in Table 5.1, families with more than three children comprised only 8.1% of the total. These 204 couples had 882 children, for an average of 4.3 per family (see Table 5.4). Referring to Table 5.2, we see that 62.7% of these families had all girls, and 30.9% had all boys. Many of these couples stated their original intention to have large families, but also mentioned having expected a sex mix.

I'm the mother of 5 healthy boys...we always wanted a large family, but did have hopes for at least one female (3-882, 79).

Others might not have had so many children had one of each sex shown up earlier:

In the hope of having a son, we ended up with four daughters...we are still hopeful that we will have a son someday (2-1537, 82).

I have five children -- all boys. You can see that my problem is in getting a girl...my desire to have a daughter is still very much a part of me. I guess it has been my life's dream. If there is any way I could have one I would. It is so amazing how I just continually had boys. I love them deeply, but if I could still have a girl, I will (3-2292, 83).

Not surprisingly, this high parity group was the most likely to have already had at least one child of each sex -- 6.4% as compared to less than one percent in the total group [1]. In nearly all cases, there was only one child of one sex, and another child of that same sex was desired for "balance."

We have three daughters and a son. My husband desperately wants another son. He has a brother he is very close to and feels it is essential for our son to have a male sibling (14-1683, 82).

I really need your help, because we want a baby daughter; we have one daughter and three sons (14-906, 79).

As might be expected, this group also had the highest average age for both husband and wife, as shown in Table 5.6. More surprisingly, the husbands in this group were slightly older than those in families with no children (this latter phenomenon is discussed in "Couples with No Children"). Couples with four or more children were from 1.5 to three times as likely than any of the others to use the word "desperate" in their letters, as shown in Table 5.6.

We have six children, five of which are girls. The whole family desperately wants a boy (14-3187, 85).

These couples were much less likely than couples in the 1-child or the 2-3 child family to say that they wanted to have only one more child (see Table 5.8). This was also the most likely to have mentioned mother's reproductive physiology as a consideration (see Table 5.7).

TABLE 5.4 -- NUMBER AND PERCENT OF FAMILIES BY
PARITY FOUR OR MORE

| NUMBER OF CHILDREN | NUMBER OF FAMILIES | PERCENT |
|-----------------------|-----------------------|--------------|
| 4 | 156 | 76.5 |
| 5 | 35 | 17.2 |
| 6 | 8 | 3.9 |
| 7 | 5 | 2.5 |
| | <u>204</u> | <u>100.1</u> |

$\bar{X} = 4.3$ Children

TABLE 5.5 -- PROFILE GROUP BY MEAN AGE
OF WIFE AND HUSBAND

| PROFILE | MEAN AGE OF WIFE | MEAN AGE OF HUSBAND |
|-----------------|---------------------|------------------------|
| NO CHILDREN | 30.3 | 36.4 |
| ONE CHILD | 30.5 | 33.6 |
| 2-3 CHILDREN | 31.6 | 33.9 |
| 4+ CHILDREN | 33.6 | 36.7 |
| GENETIC PROBLEM | 31.3 | 32.8 |
| TOTAL GROUP | (31.5) | (34.4) |

TABLE 5.6 -- PROFILE GROUP BY PERCENT WHO
SAY THEY ARE "DESPERATE"

| PROFILE | PERCENT WHO SAY THEY ARE "DESPERATE" |
|-----------------|---|
| NO CHILDREN | 4.5 |
| ONE CHILD | 3.5 |
| 2-3 CHILDREN | 5.3 |
| 4+ CHILDREN | 10.8 |
| GENETIC PROBLEM | 0 |
| TOTAL GROUP | (5.4) |

TABLE 5.7 -- PROFILE GROUP BY PERCENT WHO GAVE
WIFE'S AGE/PHYSIOLOGY
AS A CONSIDERATION

| PROFILE | PERCENT WHO MENTION WIFE'S AGE/PHYSIOLOGY |
|-----------------|--|
| NO CHILDREN | 4.0 |
| ONE CHILD | 9.4 |
| 2-3 CHILDREN | 8.9 |
| 4+ CHILDREN | 9.8 |
| GENETIC PROBLEM | 2.5 |
| TOTAL GROUP | (8.5) |

C. THE ONE-CHILD FAMILY

As shown in Table 5.2, of the 340 families in the one-child family category, 73.3% had a daughter and 26.5% had a son (only one couple did not state the sex of their child). This was the second largest group among the five family types profiled. Although wives in this group were among the youngest (see Table 5.5), women in this group were the second most likely to report age or physiology as a consideration (see Table 5.7).

We have a daughter, but because I am now 34 years old, we feel this next pregnancy will be our last chance for a son (2-99, 79).

This group was also the second most likely to report a genetic problem (see Table 5.13).

The most distinctive characteristic of the one-child family category is that they were much more likely than any of the others to indicate the intention to have only one more child (see Table 5.8), though they were not very likely to say they were "desperate" to do so (see Table 5.6).

We have one child in good health, a 15 month old son. We would like to have one more child and we would like very much to have it be a daughter this time (4-1308, 81).

We are the happy parents of a 21-month old girl and are now hoping to have another child in the near future. Due to personal and economical reasons, we have decided to limit our family to only two children. My husband and I would like very much to experience the raising of a little boy in addition to raising our daughter (2-3509, 86).

TABLE 5.8 -- PROFILE GROUP BY PERCENT WHO STATED
THEY WANTED ONLY ONE MORE CHILD

| PROFILE | "WANT ONLY ONE MORE CHILD" |
|-----------------|-------------------------------|
| NO CHILDREN | 8.5 |
| ONE CHILD | 30.3 |
| 2-3 CHILDREN | 23.1 |
| 4+ CHILDREN | 15.2 |
| GENETIC PROBLEM | 3.7 |
| TOTAL GROUP | (21.7) |

D. COUPLES WITH NO CHILDREN

As shown in Table 5.5, the 199 couples with no children represented the youngest group of wives, but at the same time included the second oldest group of husbands (with an average of 6.1 years difference between husband and wife compared to the overall difference of 2.9 years). Further analysis showed that 45.7% of these couples stated that they had had a child (or children) in a previous marriage, while only 5.7% of the total group mentioned having done so. Given the age differences, my assumption here is that many of the couples who reported no children were referring to no children in this marriage, and for the most part, it was the husband who had remarried. Though I did not code for "sex of children from a previous marriage," it was evident from the letters that there was no need to do so, since the majority of men in the present marriage wanted at least one child of the sex opposite to their other child(ren). Many wives were more than willing to accomodate their husbands in the attempt.

[We] have been hesitant because of his reluctance to have another girl child (he has four daughters from a previous marriage)... As for myself, I am interested in having a child that is healthy and happy, first and foremost, but I also have a strong desire to please my husband in any way possible (11-1014, 80).

If it was the wife who had same-sex children from a previous marriage, the husband was just as likely to accede to his new wife's preference.

As shown in Table 5.2, 68.4% of the couples with no children were inquiring about male sex preselection while 26.8% were inquiring about female selection. The remaining 4.2% expressed a desire to have at least one child of each sex, but also expressed a preference for the sex of their firstborn.

We want a boy first and then a girl because we feel a girl should have a big brother (11-3377, 85).

Some wanted to be sure they would have at least one son:

My wife and I were recently married and are thinking about starting our family in about two years. We would like to have a boy and a girl, and given the sometimes difficulties in having boys, would like to know about this method and be able to give it full consideration when the time comes (11-51, 79).

And some wanted at least one daughter.

Me and my husband are very eager to have children and we really want to have a girl, he is the 3rd of 4 boys and a generation of boys run in his family. It's not that we care what we have but we'd like one girl and one boy. If our first born is a boy we'd like to be sure of a girl for our second born (11-2910, 84).

Table 5.9 shows the preferences of the 68 couples (2.7% of the total group; 34.2% of "Couples with no children") who were inquiring about sex preselection for a firstborn or for an only child. Only one of these couples used the word "desperate."

TABLE 5.9 -- SEX PREFERENCE OF COUPLES WITH NO CHILDREN
FOR A FIRSTBORN OR AN ONLY CHILD

| | NUMBER | PERCENT | (% OF TOTAL) |
|-------------------------|--------|---------|--------------|
| WANT FIRSTBORN SON | 36 | 52.9 | (1.4) |
| WANT ONLY SON | 19 | 27.9 | (.8) |
| WANT ONLY DAUGHTER | 7 | 10.3 | (.3) |
| WANT FIRSTBORN DAUGHTER | 6 | 8.8 | (.2) |
| | --- | ---- | ----- |
| | 68 | 99.9 | (2.7) |

As shown in Table 5.3, couples with no children were the most likely to give some reason for wanting to sex preselect (only five percent of couples with no children gave no reason, compared to nearly sixty percent of the total group). And as we can infer from Tables 5.9 and 5.10, wanting to select for a first or only child or a genetic problem constituted the majority of these reasons.

While in many cases the desire for a firstborn or only son or daughter was stated, as with many couples in the other family groups, specific reasons for such preferences often were not expressed.

We have no children yet, but would like our first to be a boy (11-119, 79).

My wife and I have been married for 4 years and planning for children. We would love to have our first child be a girl (11-1791, 82).

We are very interested in having our first and only child being a male (11-176, 79).

My husband and I want only one child and we would like a girl (11-1442, 81).

When I controlled for the year the letter was written to see if there had been discernable changes over time among couples seeking a firstborn son, I found that nearly half of these inquiries had been made prior to 1981. In fact, there were no couples in either 1986 or 1987 who inquired about preselecting for a firstborn son, although one firstborn daughter request arrived in 1986.

Couples who wanted an only son or daughter tended to be older than those who were interested in preselecting for a firstborn, often having had children from a previous marriage (again, usually same-sexed) and who now wanted just one child of the opposite sex.

My husband has two girls from a previous marriage and we would like to choose/try for a boy to complete our family (11-2953, 84).

My husband and I are ready to have a baby girl. He has 3 boys from a previous marriage. We feel that we can only afford to have one child together, therefore, predetermining the sex is very important to us (11-3012, 84).

Some were limited to just one birth because of physiological reasons:

Due to the medical problem I have [blood clotting] I have been advised that multiple pregnancy presents a great risk, therefore, it has been recommended that I only attempt a single birth. This being the case, my husband and I share in the opinion of our only child being a son and heir to our lives (11-107, 79).

Couples with no children were also the most likely to have a partner who had undergone sterilization (see Table 5.11).

My future husband has three teenage daughters and also had a vasectomy thirteen years ago. We would very much like to have a baby of our own, preferably a male (12-1231, 80).

I have recently remarried and would like another child. I have had a tubal ligation. We have 3 boys by our previous marriages and would love to have a daughter, or at least do what we can to better our chances (12-3511, 86).

Wives who had no children yet were the most likely to use some variation of the phrase "I want to give my husband

a son." Of the 22 women in the total group who made this remark, 9 (40.9%) had no children.

My husband has been married three times. With his first wife he had three girls and with his second wife he had two girls and with me, his third wife, one girl. He got so mad, for he wanted to have at least one boy and didn't want to chance having another girl baby; he went and had a vasectomy...I really would love to be able to give him the boy he always wanted (12-2326, 83).

Couples who had no children yet were also the most likely to report a genetic problem (see Table 5.10).

TABLE 5.10 -- PERCENT OF COUPLES WITH GENETIC PROBLEMS IN EACH PROFILE GROUP COMPARED WITH TOTAL GROUP

| NUMBER OF CHILDREN | GENETIC PROBLEM % | TOTAL GROUP % |
|--------------------------|-------------------------|---------------------|
| ----- | ----- | ----- |
| 0 | 53.0 | 8.2 |
| 1 | 28.8 | 14.1 |
| 2-3 | 18.2 | 69.3 |
| 4+ | 0 | 8.4 |
| | ----- | ----- |
| | 100.0 | 100.0 |

TABLE 5.11 -- PROFILE GROUP BY PERCENT OF COUPLES
IN WHICH ONE PARTNER HAD BEEN STERILIZED

| PROFILE | PERCENT WITH STERILIZED PARTNER |
|-----------------|------------------------------------|
| NO CHILDREN | 10.6 |
| ONE CHILD | .9 |
| 2-3 CHILDREN | 2.5 |
| 4+ CHILDREN | 6.4 |
| GENETIC PROBLEM | 1.2 |
| TOTAL GROUP | (3.4) |

E. FAMILIES WITH A SEX-LINKED GENETIC PROBLEM

Eighty-one couples (3.2% of the total) reported that having (or suspecting) a sex-linked genetic disease was the main reason they wished to sex preselect [2]. Thirty-five of these (43.2%) stated that they did not want a future child to be afflicted with the disease. In these instances, the mother was already a carrier of a sex-linked genetic disease and the couple did not want to take the chance that it would be transmitted to their sons (see Figure 5.1). Thus, they wanted to sex preselect for daughters (and rarely addressed the fact that some of the daughters would themselves also be carriers).

I am on the borderline of being a carrier of Duchenne Muscular Dystrophy; I had one brother that died from this disease. Earlier this year I became pregnant and we decided to have amniocentesis...[when] we learned the baby was a boy, I had an abortion. We are wondering if there is any research going on where a couple could increase their chance of having girls (10-584, 79).

I have a seven year old daughter and shortly after she was born I found out I was a carrier for Duchenne muscular dystrophy. As you probably know, only males get the disease and females are carriers. I want another baby so badly, but I want another girl due to this problem (10-2956, 84).

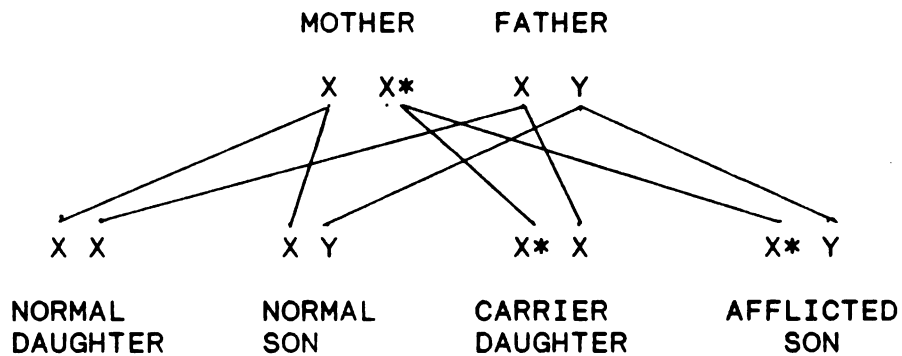
In the absence of sex preselection, many of these couples might never attempt a pregnancy.

Three couples (3.7%) expressed concern that their children might become carriers of a genetic disease. This was generally mentioned by couples in which the husband was already afflicted (usually with hemophilia). Since none of

their sons could inherit the disease and all the daughters would be carriers, they wished to sex preselect for sons only (see Figure 5.2).

My husband has hemophilia. We waited six years before even considering seriously having a child. The result of our relying on Lady Luck was the birth of twin girls...we adore our beautiful daughters, but as you know, they are carriers of hemophilia. We would like to have another child in another couple of years, but we want to do anything possible to ensure that our last baby would be a boy (10-37, 79).

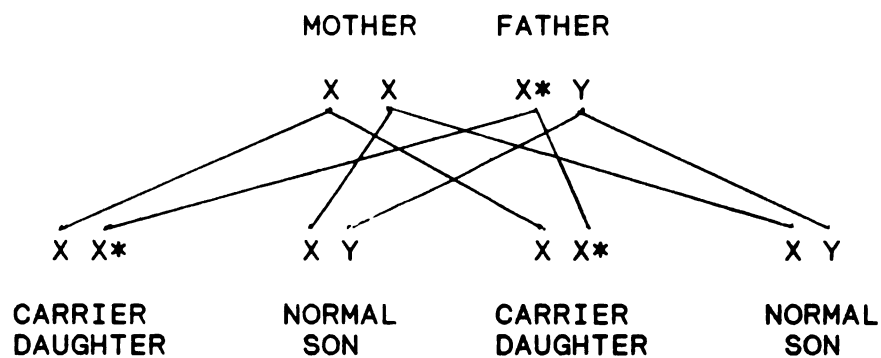
FIGURE 5.1 -- TRANSMISSION OF A SEX-LINKED
GENETIC DISEASE BY A CARRIER
MOTHER



KEY: X = FEMALE CHROMOSOME
 Y = MALE CHROMOSOME
 X* = FEMALE CHROMOSOME WITH
 DEFECTIVE GENE

With a "carrier" mother (X X*) and a normal father (X Y), there is a 50:50 chance that a child will be normal. But there is also a 50:50 chance that a daughter will be a carrier, and that a son will be afflicted. Most couples in this study preferred to not risk having an afflicted son, and wanted to sex preselect for daughters.

FIGURE 5.2 -- TRANSMISSION OF A SEX-LINKED
GENETIC DISEASE BY AN AFFLICTED
FATHER



KEY: X = FEMALE CHROMOSOME
 Y = MALE CHROMOSOME
 X* = FEMALE CHROMOSOME WITH
 DEFECTIVE GENE

With a normal mother (X X) and an afflicted father (X* Y), all daughters will be carriers, and all sons will be normal. Couples in this study who faced such a situation preferred not to have carrier daughters, and all wanted to sex preselect for sons.

While most people mentioned well-known sex-linked genetic diseases such as Duchenne muscular dystrophy and hemophilia, some letters coded into this category did not reflect either good understanding of heritable problems, or solutions to these problems.

I recently lost my first baby; she was born without [a crucial enzyme]. In the Ericsson method it spoke of sperm separation. Is there a chance that an enzyme can be added to the sperm? (10-2262, 83).

Some reported that previous children had been born with birthmarks, deafness, retardation, and other problems, although these were probably not attributable to sex-linked diseases [3]. A total of 42 letter-writers mentioned that the wife was (or possibly was) a carrier, and 5 said that the husband was afflicted.

Table 5.12 shows that the percentage of couples who reported a genetic problem varied over time, with recent years accounting for the heaviest volume of mail. Note that by 1983, nearly three fourths of all letters had arrived, yet only forty percent of the letters referring to a genetic problem had as then been received. In 1984, there were two articles that mentioned sex-linked genetic diseases in conjunction with the Ericsson method of sex preselection. One appeared in May in the New York Times, and was widely reprinted by wire services. The other was in the September issue of the Ladies Home Journal. Nearly forty-five percent of all letters mentioning a genetic problem arrived in 1984

alone, which graphically demonstrates the link between media stimuli and reader response.

Table 5.13 compares the "genetic problem" group with the total group. About the same percentage of each already had boys. While far fewer in the genetic problem group had girls yet, they were twenty times more likely to say they wanted one.

TABLE 5.12 -- PERCENT OF FAMILIES WITH GENETIC
PROBLEM BY YEAR LETTER RECEIVED
COMPARED WITH THE TOTAL GROUP

| YEAR | <u>% GENETIC PROBLEM</u> | <u>CUMUL- ATIVE %</u> | <u>% TOTAL GROUP</u> | <u>CUMUL- ATIVE %</u> |
|-----------|----------------------------------|-------------------------------|------------------------------|-------------------------------|
| 1973-1978 | 4.9 | (4.9) | 4.1 | (4.1) |
| 1979 | 7.4 | (12.3) | 22.5 | (26.6) |
| 1980 | 3.7 | (16.0) | 10.1 | (36.7) |
| 1981 | 4.9 | (21.0) | 3.6 | (40.3) |
| 1982 | 8.6 | (29.6) | 23.1 | (63.4) |
| 1983 | 9.9 | (39.5) | 11.5 | (74.9) |
| 1984 | 44.4 | (84.0) | 14.3 | (89.1) |
| 1985 | 12.3 | (96.3) | 7.4 | (96.5) |
| 1986 | 3.7 | (100.0) | 2.1 | (98.6) |
| 1987 | 0 | | 1.4 | (100.0) |

TABLE 5.13 -- SEX OF CHILD(REN) NOW HAVE OR WANT
IN FAMILIES WITH A GENETIC PROBLEM
COMPARED WITH THE TOTAL GROUP

| | GENETIC PROBLEM (N=64) | TOTAL GROUP (N=2463) |
|-------------|------------------------------|----------------------------|
| | <hr/> | <hr/> |
| HAVE BOYS | 28.1 | (27.9) |
| HAVE GIRLS | 18.8 | (61.3) |
| DON'T SAY | 3.1 | (.1) |
| WANT A BOY | 7.8 | (5.5) |
| WANT A GIRL | 42.2 | (2.3) |

F. RESULTS OF HYPOTHESIS TESTING

While some of the hypotheses proposed in Chapter 3 were supported, some were not. Here I review each hypothesis, note whether (and to what degree) it was supported or disconfirmed by the statistical analysis of the data, and discuss my interpretation of either result.

1. Couples at Zero Parity

- (1) A substantial number of letters would be from couples at zero parity who wanted a first-born son.

Regardless of how one defines "substantial," 1.4% would not appear to qualify [4]. Note, however, that among these few couples who were interested in sex preselection this early in their family formation, four of five preferred a son for a firstborn, and three in four preferred a son for an only child. This, of course, reflects a very strong son preference among couples who did not yet have children.

It would be interesting to follow up on the couples who were successful in achieving their firstborn son preference; my hypothesis then would be that many of these same couples would now be as interested in selecting for a daughter as they were for the firstborn son. As we have seen, there was evidence for this in letters from people who: (1) did get what they wanted right away and now wanted to select for the opposite; (2) reported using another method of sex preselection.

tion for a second (or third) child; (3) said they wanted no more of the same sex.

- (2) A significant percentage of those at zero parity would want to use sex preselection because of a sex-linked genetic defect.

Of the 199 couples in the zero parity group (who comprised 7.9% of the overall group), 61 (30.7%) said they had (or suspected) a genetic problem. And among the 81 couples who reported a genetic problem (3.2% of the overall group), 62% stated they had no children yet. Since a substantial percentage of people who had not yet had children did report concern about a genetic problem, this hypothesis is supported. I note here, however, that the overall percentage of people seeking information about sex preselection for genetic reasons was quite low, representing fewer than eight percent of the total. As noted previously, most letters inquiring about sex preselection in conjunction with a genetic problem came in response to two widely distributed popular articles. None of the couples who wrote in mentioned having been informed of the possibility of sex preselection by a genetic counselor. Given the checkered history of claims of successful sex preselection, this is perhaps not surprising.

2. Couples at Parity One

- (3) The majority of couples at parity one would want the opposite to what they now had, although some couples with one son would be expected to want an additional son.

Of the 340 couples with one child (13.6% of the overall group), only five (1.5%) wanted an additional child of the same sex. Four of these (1.2%) wanted an additional daughter because of a sex-linked genetic disease. One couple had one son and wanted another -- no reason given (.3%). The overwhelming majority of these couples wanted at least one child of each sex unless there was a genetic reason for preferring one sex over the other. Thus, the first part of the hypothesis is strongly supported but the second part is rejected.

3. Couples at Higher Parities

- (4) Most of the people at parity two and higher will have had all one sex and be seeking at least one of the opposite.

Support for this hypothesis is best demonstrated in Table 4.9, "Reasons Couples Wish to Sex Preselect." Only 31 of 2,505 couples (1.2%) reported wanting an additional child of the same sex as one they already had. What was also demonstrated here is that most of the couples writing in were at parity two or higher -- of the 2,419 couples who reported present family size, 1,880 (75.0%) had two or more children (see Table 4.1, "Present Parity").

- (5) Many of the couples who wished to sex preselect and who were at parities two and higher would also want only one more child.

As previously discussed, many people who might have wanted to limit the number of children in their completed families did not actually say so. But some did, and we might usefully compare this with present parity (Table 5.14).

People with no children yet were least likely to mention a limit to the number of children they planned (or would have liked) to have. Also, people at the highest parities were less likely to mention wanting to limit family size, either because they wanted large families or because it was too late to do so. Couples with only one child were the most likely to say they wanted to limit family size (Table 5.14) and also to say they wanted just one more child (see Table 5.8).

TABLE 5.14 -- PERCENT AT SELECTED PARITIES BY
"WANT TO LIMIT FAMILY SIZE"

| PARITY ----- | PERCENT WHO SAY THEY WANT TO LIMIT FAMILY SIZE ----- |
|-----------------|--|
| NO CHILDREN | 2.0 |
| ONE CHILD | 5.3 |
| 2-3 CHILDREN | 4.4 |
| 4+ CHILDREN | 2.9 |

Since most people did not mention whether they did or did not want to limit family size, it is difficult to argue that this hypothesis is confirmed. Those with four or more children were twice as likely as others to use the word "desperate [5]," however, and my sense is that completed family size was an important issue for many, if not most, of these couples. Otherwise, they would be more willing to "trust to nature" that the child of the wanted sex would eventually appear, and would not be interested in sex preselection.

- (6) People at even parities (2, 4, etc.) with a balance (the same number of sons as daughters) would want to sex preselect for an additional son.

There were no couples in this study who had equal numbers of sons and daughters with the exception of one couple who had one son and one daughter and had discovered a sex-linked genetic problem; they were seeking another daughter. This hypothesis therefore received no support. The hypothesis had been based on the idea of a "weak" son preference, which is evidenced by (1) wanting a son first, then a daughter; (2) wanting more sons than daughter(s) in a family with an odd number of children; (3) wanting a son as an only child.

- (7) Couples at higher parities (3 or more children) with an imbalance would want to sex preselect for balance.

Of the twenty couples (.8%) who already had one son and wanted another, 14 (70.0%) were at parity three or higher. All had only one son and wanted at least one more. Of the eleven couples (.4%) who had one daughter and wanted another, 4 (36.4%) were at these higher parities and all wanted another daughter for balance. Thus, this hypothesis was supported although comparatively few families fell into this category.

The quantitative analysis of these letters clearly showed support for previous observations from the sex preference literature that American couples want at least one son and one daughter in their completed families. In contrast to studies that also indicated a wide-spread preference for a first-born son, the couples in this study were most interested in selecting for a last-born, after not having achieved a mix while relying on nature.

In the following chapters I discuss the analysis of the qualitative data, which focuses on the actual process of translating sex preferences into action.

[1] See Table 4.2.

[2] Although this category reflected the letter-writer's definition of such a problem, it might not have necessarily reflected medical reality.

[3] The category "Other genetic problems" under "Remarks" included 24 couples (29.6% of those who mentioned a genetic problem).

[4] Refer to Table 5.10.

[5] See "Families With Four or More Children."

CHAPTER 6

CATEGORIES FROM GROUNDED THEORY CODING

In this and the following chapter I discuss and illustrate important steps in the grounded theory coding and analysis of the letters sent to Gametrics. As noted in Chapter 3, a hallmark of the grounded theory method is that data collection and analysis go hand in hand from the very beginning. In this chapter I describe some of the major categories or themes that emerged from the beginning steps of "open" coding of the letters. As a theme seemed important, or at least recurrent, I began a "memo" on it [1]. As the theme was reinforced, or changed, or splintered off into a new theme (or themes) I began new memos. Later on, some of these more divergent memos were recaptured under a new theme and a new memo. While it would probably be impossible to show the entire process of a grounded theory project, most of what follows shows at least "frozen sections" of a sample of the work done in the discovery, analysis, and search for further properties of some of these themes. I also comment on the relationship between these themes and the themes from the content analysis.

In the following sections I show several of the more salient emergent categories from the grounded theory analysis, along with initial analytic commentaries for each. At this stage in the analytic process, everything is quite tentative and provisional. The grounded theorist is less concerned with being "right" and more concerned with seeing what the emergent categories are, and if and how these concepts suggested by the data will lead to a discovery of the general process(es) that engage these letter writers. As each concept emerges, a separate memo on it is begun. The memos are an attempt to theoretically expand the dimensions of the concept, and serve as a place for the analyst to run down and exhaust all possible meanings inherent in a given condition, interaction, strategy, or consequence. These expanded possibilities then become specific items to seek out in the data. More often than not, something that was not attended to earlier now becomes one more obvious step in the emergent social process.

I include here many verbatim quotes from the letters to illustrate particular themes and to show how several themes tie together [2]. While this chapter develops the categories generated through the grounded theory analysis, the next chapter (Chapter 7) shows how these themes became integrated around a "core" category, or "basic social process," which describes in a more general way the activities of the people who wrote these letters inquiring about sex preselection. The end product of the analysis was the

discovery of a social-psychological process that could also serve as a framework in other settings to explain the activities of people who are searching for information both similar to, and very different from, sex preselection.

A. THE SOCIAL CONTEXT OF SEX PREFERENCES

The first themes I discuss are related to the larger social contexts within which sex preselection operated. Given both the societal trend towards smaller families and the technological means with which to accomplish them, it was not surprising that many people had undertaken the management of most, if not all, aspects of family planning: numbers of children, their spacing, and now their sexes as well.

1. Making Reproductive Choices

A major theme was that of REPRODUCTIVE CHOICES. In addition to, or in conjunction with, sex preselection, people attempted to control numbers and spacing of children through contraception, abortion, sterilization and/or reversal, and by using donor and/ or in vitro insemination and other medical approaches to reducing infertility. Many people indicated that they should be able to fully choose and control what they could and would do in the area of family planning.

I feel that this thing you are doing is wonderful and should be used to motivate couples to choose sexes of their children, rather than have

10 before they really get what they want and decide to stop. We can decide on abortions, why not the life and sex of a wanted child? (1-689, 79).

I already have two little girls and we would like to have two little boys. I plan to get pregnant in a year (1-1898, 82).

I have a daughter and would like to have a boy next but don't want another girl yet (1-2271, 83).

We feel that we the parents have the automatic right to try and choose whether we want a boy or a girl, so we are pleading with you to help us choose the sex of our next child (2-3537, 87).

I have three boys and want a girl desperately. I am currently pregnant and am undergoing amniocentesis next month. If it is a boy, I intend to abort (5-837, 79).

My husband has two girls from a previous marriage and had a vasectomy thereafter which is now irreversible due to the length of time now. I have no children of my own, and my husband and I opt to have a baby boy through artificial insemination (12-3082, 84).

These trends are themselves, in turn, shaped by shared social attitudes, especially those concerning the appropriateness of using these techniques in particular cases.

2. Shared Social Sentiments: "Good" Reasons

There were several recurring themes that had to do with what could be called shared attitudes, values, beliefs, or social sentiments. These formed the background or context for sex preferences, or "GOOD" REASONS for seeking sex preselection, in contrast to more vague wants and needs discussed below. Some commonly shared sentiments included the assumption that most people wanted a firstborn son, that most also wanted at least one child of each sex, and

that people particularly wanted at least one son. Evidence for these shared attitudes appeared in several forms. One was the assumption that "of course" (or "obviously," "needless to say," "as you can imagine," etc.) the reader would immediately see and agree with the writer's problem:

I already have two daughters...and needless to say I was a little disappointed when the second wasn't a son (1-2469, 83).

I am Greek and a mother of 3 boys. Obviously, my problem is the "absence" of a daughter in our family (3-2808, 82).

After 3 girls you can certainly understand why we would be interested in sperm separation (12-1777, 82).

Many of these attitudes were shared and reinforced, often by the reaction of family and friends to the fact that one had yet another son or daughter, or a child that was not of the expected sex.

3. Shared Social Sentiments: "Bad" Reasons

Other people expressed concern that their reasons sounded trivial, or worried that they might sound selfish or ungrateful. These concerns became "BAD" REASONS to sex preselect.

But we want a son so bad, I hope this doesn't sound selfish! (1-862, 79).

I know there are many women who can't have children at all, and compared to them I am very lucky. I have three healthy wonderful kids. Sometimes I think I may be greedy and selfish in wanting more (3-966, 80).

Well, we have two sons and would like three children. It would be nice to have a daughter next,

not only for my own selfishness, but because I think the boys need to grow up with a girl around (9-2419, 83).

My husband and I...would like to have only one child and would like to have the child be a boy. The doctors in this area, that I have discussed this with, feel that we are being very selfish and that maybe we should consider not having any (11-1718, 82).

Closely allied to selfishness was the sense of guilt, either for wanting a child of a given sex, or for not having been able to produce one:

I almost feel guilty even asking you if there isn't just some way to tip the scales in my favor even just a little (3-135, 79).

I must tell you I spend a great deal of time depressed because I feel I'm responsible for cheating my husband out of a son (13-2263, 83).

I am a mother of 2 beautiful boys...they are my pride and joy and I realize how fortunate I am in being blessed with 2 healthy children. But with guilt, I must confess, that there is an ache inside that will never stop unless I am also blessed some day with a daughter (9-2340, 83).

Thus, there were sometimes tensions between wanting something very much and feeling that the want was not quite "legitimate."

As further proof of the lack of universally shared agreement as to the desirability of sex preselection, many writers experienced firm disagreement, especially from their family doctors. It often came as quite a surprise when others did not share their concerns and moreover found them inappropriate:

We have decided to have one last try for a boy and I'd like all the help I can get. I have reached a dead-end here. My obstetrician says

'50-50 chance, the rest is nonsense,' and my regular MD suggested I see a psychiatrist to find out why I want a boy (2-313, 78).

4. "Needing" a Son or Daughter

As discussed in Chapter 4, it was sometimes difficult to classify (or even discover) specific reasons people were interested in sex preselection. One shared social sentiment had to do with seeking a son or a daughter not in terms of a "want," but of a "NEED:"

I have waited so long for a possible answer to my very great need for a son. I know there is only a chance but my husband and I only ask for that chance. We have three beautiful daughters but the need for a son is oh so strong and I have to try to reach out and hope that this wonderful gift of science can help us (1-1155, 80).

I am unfulfilled with three sons and still feel an overwhelming need for a daughter (3-997, 78).

We plan to conceive our second and last child [soon--have one daughter.] We both feel very strongly about population control and we only wish to replace ourselves on this earth. We have discussed this in depth and we both feel that we need to have a child of each sex to fulfill our lives to the utmost (5-1949, 82).

I think you have made a tremendous contribution to science, especially in cases like mine where having a boy is not merely a whimsical desire, but rather a biological need (6-333, 76).

Surely you must understand a person's need to have a child of his or her own sex (9-1463, 81).

We have one child, a boy. We both feel a strong need for another child, especially a girl. It is difficult to express the emotional need a little girl could fill (12-3162, 84).

In the content analysis, these had been coded either as "no" reason, or "want one of each," which failed to satisfy my

intent to capture at least some of the emotional content of the data [3]. What was more satisfying at this point was a memo about the distinction between a "want" and a "need." The "wants" tended to point more towards social or interactional reasons: to experience the raising of a child of each sex; to carry on a family name or business; to provide an extended family with a child of the "missing" sex. The "needs," on the other hand, were more likely to be expressed as a reflection of a very personal inner state of being.

This prompted me to search for evidence in the letters that this "want/need" tension was a problem for the writers themselves. Indeed, some people seemed very aware that their reasons might appear vague to others and spoke of finding it difficult to express these feelings adequately:

Somehow our reasons (on paper) for wanting to attempt using your technique sound weak and superficial (2-1644, 82).

It was so hard to put on paper what I actually feel--it looks so trite and there was so much I wanted to convey. I hope you understand (3-1135, 80).

It's hard to explain just why having a girl is so important to me--especially because it sounds as though I don't love my boys or am disappointed I had boys, which is not in any way true. Our boys are wonderful and we wouldn't trade them for all the world. It's just there's this empty spot in my heart I just can't seem to fill (4-3068, 84).

While many of the letter writers expressed wanting a son or daughter desperately, they often did not give specific reasons for doing so. "I want a son/daughter because I don't have one" was the gist of the argument. Significant-

ly, the more same-sex children these couples already had, the worse they perceived their situations to be. Even people who claimed to have "always" wanted a child of one or the other sex often did not present much of an argument beyond that.

All of my life I have dreamed of having a son and I had hoped that one of my children would be a boy. In the event we would plan a third child, I would hope it would be our elusive son (7-965, 80).

Other people mentioned more "selfish" reasons for wanting a son or daughter without justification or guilt:

We have 4 sons...I always wanted a girl, just one for myself (9-1793, 82).

I just want to have a little boy that looks like my husband (1-1182, 80).

I have three beautiful, healthy girls, but I am vain enough to still want a boy (2-241, 79).

Regardless of whether these were "wants" or "needs," and also disregarding their origin, if they were strong enough to compel action, they offered at least several conditions under which sex preselection might then be pursued.

B. CONDITIONS AND BARRIERS REGARDING SEX PRESELECTION

While preference is a necessary condition for sex preselection, it is not sufficient -- preference alone will not guarantee action. Wanting a child of a particular sex may be only one of many goals and may not even be one with a very high priority. Many other considerations must be taken into account before the decision to sex preselect can be made.

1. Setting Limits

A theme that emerged very early in the examination of these letters was that people mentioned LIMITS of various kinds: limits to their own actions, limits to what they were willing to tolerate, or limits imposed on them by others or by circumstances beyond their own control. Sometimes these limits were stated as if they were ABSOLUTE, such as the intention to have only one more child, regardless of sex. For others, limits appeared to be more FLEXIBLE. This theme of limits could be conceptually divided into five sub-sections:

- a. Internal limits
- b. Circumstantial limits
- c. External limits
- d. Combined limits
- e. No limits

a) Internal Limits

Once the decision to have a child had been acted upon previously, using sex preselection or not, new possibilities for success or failure arose. Each step then often created new (or changed original) LIMITS FOR NUMBER OF CHILDREN:

Hoped that this would be the last baby, we only wanted two kids, but we are willing to try again, we want a son so bad (2-703, 79).

My husband and I have just had our third son. I had been hoping for a girl since we were going to limit our family to three children. Well, I still want my girl (4-1846, 82).

Taking past decisions and experiences into consideration, the couple now had to decide on current limits.

There were also limits to ACTION, how far one would be prepared to go in order to sex preselect. Two cliches that appeared regularly in these letters were "not wanting to have ten kids" in an attempt to have at least one of each sex, and "wouldn't trade" what they now had for one of the opposite. More to the point, there were possible actions that COULD have given some of these couples the child of the preferred sex, but such actions were just not acceptable: abortion of the "wrong" sex, and adoption of the "right" sex [4].

While many people said they were desperate, for others there were LIMITS TO DESPERATION:

I've always wanted a son. I am definitely not desperate to do so...(1-2146, 82).

We have 4 girls and 1 boy and are interested in having one more boy. We would prefer not to rely on abortion to obtain another son. We are not desperate, but interested (5-814, 79).

This is an important consideration, because it adds the dimension of degree to "want" or "need." To state that one has a preference for the sex of their offspring is obviously different from stating that one has no such preference. But the degree of preference will also influence whether or not one acts on the preference. Most of the sex preference studies in Chapter 2 were limited to discovering only whether or not such preferences existed.

Some people felt they had reached the LIMIT as to how much they were willing or able to do through their OWN ABILITIES:

We are willing to try again only through a procedure like this (1-1751, 82).

After having my third daughter recently, I feel this may be the only alternative left (1-3229, 85).

We only want one more child to finish our family [husband has daughter by previous marriage] and we only want a boy...we just don't know how else to try to have the baby of our hopes and dreams (11-3240, 85).

Having "tried and failed" at sex preselection (having relied on at-home methods, the odds, and/or hope and prayer) was a common complaint. The point at which failure was defined as such depended on the total number of children that were wanted. Some couples had clearly reached their LIMITS TO TOLERANCE of excess numbers of one sex [5], as shown in previous chapters. And many couples mentioned a definite limit to the NUMBER of children (regardless of sex) they were willing to have.

Some also expressed LIMITS ON OTHER CHARACTERISTICS. In addition to the "wrong" sex, many WERE NOT WILLING TO TOLERATE certain physical or mental DEFECTS OR DISEASES:

I voluntarily asked to have an amniocentesis test done for the primary purpose of determining whether or not the fetus has Down's syndrome or spina bifida (1-2339, 83).

My father was a hemophiliac and I am a carrier of the disease. Meaning that I have a 50-50 chance of having a hemophiliac [son], this is a chance I don't want to take. After seeing the suffering and pain that my father had to go

through with this disease. [Have 1 daughter] and we would like very much to have another child (10-359, 74).

For others, there were LIMITS TO TOLERANCE OF A PARTICULAR METHOD of sex preselection. As noted in Chapter 4, a few couples did not like aspects of the Ericsson method, particularly artificial insemination. And others did not like the Shettles or Whelan methods:

They [Shettles] discuss the douching with either vinegar...or baking soda...I don't really care for the sound of that (1-3216, 85).

For a few people there were LIMITS TO THE PERMISSABLE VISIBILITY OF OUTSIDE HELP:

Please try to send me more information...and please I would like you if you can to keep it as a confidential matter. If my kind of people [ethnic group] hear about this [method] it's a disgrace to them [has 2 daughters] (7-876, 79) [6].

Most reproductive acts are accomplished in private (even though their consequences may become public), but assisted reproductive techniques add a new dimension of shared intimate knowledge among multiple interactants.

Some women expressed a definite LIMIT TO THE NUMBER OF PREGNANCIES they were willing to go through:

I didn't think being pregnant was much fun to try again and have a girl (1-253, 75).

Perhaps this was why some were inquiring about the possibility of twin preselection.

Sometimes there was a LIMIT TO AGREEMENT BETWEEN SPOUSES. I would hypothesize that for the most part, spouses agreed on what they wanted. If one cared a great deal more about the sex of a child than the other, the partner was generally willing to go along with it -- at least up to a point:

My husband has realized how much it means to me to have a girl (9-2691, 81).

Others, however, were NOT so WILLING to give in to a spouse:

I would consider adoption but my husband is not as enthusiastic about this idea [have 2 daughters] (7-965, 80).

Here, one person's want/need must either match that of their spouse, or their spouse must want/need to please them regardless of their own preference as to the sex of a child.

A few people mentioned LIMITS TO THE AMOUNT OF RISK they were personally willing to undertake: such considerations included both the safety of child-to-be and of the mother, and were usually given as one part of a longer list of concerns:

I would like to know more about your method; costs, risks involved, centers where it can be accomplished, and any statistics available (1-239, 79).

Is there more possibility of brain damage to the child? (1-256, 77).

While most parents would no doubt be concerned about such risks, very few people mentioned them spontaneously.

Other limits included LIMITS TO ENDURANCE. These took the form of "last straws," "insults added to injury," and "breaking points:"

My husband has a son by a previous marriage [have daughters, want a son] which only adds to our heartache (1-1751, 82).

To top it off, everyone I know that was pregnant this year wanted a boy and got one, except for one or two unlucky people like me. Let me tell you, that makes it hurt much worse! (2-528, 79).

All of our friends have boys [this couple has 2 daughters]. We feel so cheated and very unhappy with each other (7-2786, 83).

Of course I want my child to be healthy, but I'm tired of the rude comments like 'What would you prefer, a healthy boy or a defected [sic] girl!' (9-1463, 81).

But last year, after the birth of our third son, there were 8 girls and 1 boy born at our church. Now every time I go to the nursery I'm surrounded by baby girls. I go home very depressed and in tears (9-2691, 81).

When wants/needs were thwarted, desperation and unhappiness were often consequences.

b) Circumstantial Limits

Couples often mentioned LIMITATIONS ON THE VARIOUS RESOURCES available for the sex preselection process. There was a limit to TIME. This included time to TRAVEL to a clinic, vacation time accrued, and also the time limit placed by the BIOLOGICAL CLOCK. Another element in the calculus of resources was a limit to MONEY available for this procedure and its attendant costs and/or the expense of

raising additional children. Time limits also included the amount of TIME BETWEEN PREGNANCIES:

We have 7 children, all girls. We would like very much to have a boy. I don't want to have another baby for some time because I feel I need a break (1-3495, 86).

As Chapter 4 demonstrated, for some couples there were LIMITATIONS OF PHYSIOLOGY. This included people who were sterile or infertile, or women who had a history of difficult or dangerous pregnancies. Sometimes the physiological limitations could be (or were perceived to be) fairly EASILY OVERCOME:

My husband had a vasectomy during a previous marriage...and we have decided that I'm to become pregnant via artificial insemination of donor sperm (11-1677, 82).

I am...single. I have wanted to have children for a long time. Since my biological clock is running out I decided...to become a single parent by artificial insemination [wants girl] (11-2407, 83).

I had a tubal ligation, but if there is a good possibility of having a boy [have 4 daughters], I will even try having the tubal ligation reversed (12-1478, 82).

More problematically, however, there were also LIMITS TO UNDERSTANDING OF PHYSIOLOGY and/or biology:

The fact that my in-laws blame me for being unable to bear sons just makes things more difficult (7-1909, 82).

My husband says that men make the girls and women make the boys (7-2786, 83).

Even with a very clear understanding of all the physiological processes involved in conception, pregnancy, and child-

birth, there were still LIMITS OF ABILITY TO CONTROL all these factors.

There were also LIMITS TO OPTIONS or alternatives to sex preselection. For people who were unable to have any children, adoption was a good possibility. If couples already had children, however, adoption was usually not an option for them (see section D below). Other people with limited options included those who had been sterilized:

We chose the option of a vasectomy without enough information and for the wrong reasons. We know that there are not many options open to us, but we are trying to find out what we can (12-1032, 79).

These couples could have donor insemination, could try to adopt (if they were childless or were willing to accept a hard to place child), or could attempt to have the sterilization reversed (see section B.3, "Managing Limited Options").

c) External Limits

In addition to self-imposed limits, there were various kinds and types of perceived external limitations. There were built-in LIMITATIONS OF THE ERICSSON METHOD itself. Besides having to accept the possibility of getting pregnant with the "wrong" sexed child, there was the possibility of failure anywhere along the line, including failure to conceive at all:

We tried your method...did AI 3 times but was not successful...[the clinic] cancelled because I could not keep the appointments the next 2

times as I could not get the semen specimen (1-3536, 87).

Thus, a "want" or a "need" may have already been thwarted by a "tried but couldn't."

People were also LIMITED BY CLINIC RULES AND GUIDELINES. Although many couples indicated a strong desire to control all aspects of decision-making around reproduction, the locus of control was not always with the couple who wished to sex preselect. Some clinics would not allow couples to sex preselect for a firstborn; most would not accept those who were unwilling to risk a "wrong" sexed child; and all had more mundane limitations:

Could you please tell me whether any of your clinics that work with the sperm separation procedure for male children are open seven days a week? My problem is that my ovulation day can vary 5-7 days. I went to the [city] clinic twice. The first time they inseminated me and I didn't get pregnant. The second time I was in [city] for 5 days and on Friday they said I was close to ovulation, but I hadn't ovulated yet and [they] would not inseminate me. They said my chances for a girl would be increased if they inseminated at the wrong time. They felt bad about it, but they were honest! Things would be much easier if a 7 day a week clinic were open and then we wouldn't have to worry about missing the day of ovulation because it was a weekend (1-1692, 82).

And there will always be a LIMITED NUMBER OF CLINICS:

Will you be opening more clinics in the future so people can get to them more easily and they won't have to spend so much money travelling? (1-1692, 82).

There were also LIMITS TO ACTION one could take WITHOUT OUTSIDE HELP, especially if one were seeking a more techno-

logical solution such as the sex preselection method offered by the Ericsson technique. One simply cannot do this at home (though some would have been willing to try):

What I want to know is, can I try your method at my home. I myself am an M.D. (1-3536, 87).

One limitation on outside help may have been people's own physicians or other experts they had been referred to or sought out. Help from these experts may not have been forthcoming or may have been counter-productive. Additionally, one's own physician or other outside expert may have tried to help but was LIMITED IN KNOWLEDGE: some physicians recommended the diet method, others the timing and douching methods. These limits to medical knowledge will prevail, especially with newly emergent (and controversial) techniques, unless each physician does a complete search of the literature about each medical subject for every patient, a prima facie impossibility.

The ACTIONS OF OTHERS, such as a spouse, a physician or another "expert" or gatekeeper, may have limited one's options.

My obstetrician would not even permit an amniocentesis test to tell me that I was going to have another boy (3-997, 78).

My husband won't let me go through another operation to have a sterilization reversal (12-1434, 81).

At the age of 23 years I was talked into a tubal ligation after my last child. I have been told by several people that in vitro is not being offered to couples with children. I find this hard to believe for how could someone offer this to only childless people when there are others in

the same boat that I am in. If they are able to afford all of the expenses as childless couples why are they not given the chance. These people should not be classified as unsuitable candidates (12-3514, 86).

d) Combined Limits

And, of course, sometimes SEVERAL LIMITS CAME TOGETHER:

I have come to the realization that not only am I getting into an 'older' age group [32], not the best for pregnancy, but money is getting tighter. We have decided to have one last try for a boy [have 5 daughters] and I'd like all the help I can get (2-313, 78).

My husband wants a son -- of his own blood [ethnic European]. I personally enjoy my 2 girls and wouldn't mind a third, but because of my age -- and disposition! -- I'd rather go through only one more pregnancy. If we had a 3rd girl I might try once more, but I really don't want to as I feel an obligation not to overpopulate or not to go beyond our financial means, or go through the age risks (7-1451, 81).

These are examples of the tension between several wants and needs, which must then be prioritized.

e) No Limits

Some people claimed NO LIMIT TO ACTIONS they would take in order to get the child of the wanted sex:

We are willing to undergo anything! (1-270, 79).

My OB/GYN seems to think it is wrong for me to try for a son. But this is my goal, and I will achieve it one way or another! (1-1933, 82).

I will go through anything. Artificial insemination, 'test tube' baby, or anything (3-1030, 79).

My husband and I would be willing to take part in any schemes/experimental groups, etc. you have at present or in the future (3-3019, 84).

If you need a couple for further experimentation in the area of sex selection techniques, do not hesitate to call on us [have no children, want an only son] (11-1131, 80).

For some couples this would even have included ABORTION of the "wrong" sex. And some people claimed NO LIMIT ON MONEY OR TRAVEL they were willing to expend. To encounter "no limits" in a letter allowed me to infer a high degree of want/need. Indeed, where such want/need was expressed, fewer limitations were mentioned qua limitations.

Many people were quite convinced that there were NO LIMITS ON SCIENTIFIC MEDICAL TECHNOLOGICAL CAPACITIES, and seemed to believe that once physiological processes had been described and understood by science, the technology to control these processes was not far behind.

I know that all things in the medical and science fields are possible (1-689, 79).

It's hard to believe with everything they know and do that there is not an answer to my desire for a female child (3-2709, 84).

For a few people there were almost NO LIMITS TO WHAT ELSE THEY WOULD PRESELECT FOR in a child:

As for donor choice I prefer a healthy, intelligent person of average or better looks. Irish ancestry would be nice and musical and/or mathematical ability a plus. Red curly hair or dark curly hair also a plus. I am short so would like a taller donor if possible [single woman who wants AID] (11-2407, 83).

2. Encountering Problems Beyond Control

Even though many letter writers believed that science could solve nearly every reproductive puzzle, there were indications of PROBLEMS BEYOND INDIVIDUAL OR TECHNOLOGICAL CONTROL. Having relied on a sex preselection METHOD THAT DID NOT WORK created problems for some of these couples:

Three years ago we tried to use the technique of Dr. Landrum Shettles...this was not correctly done, out of carelessness and also because it was an at home method. I was very upset when I first found out that we had intercourse before ovulation, so much so that I almost had an abortion. I gradually began to accept it, and when my second little girl was born I loved her just as much as the first one. We want a boy very much (1-2154, 82).

My two daughters...were carefully planned as summer babies. Both were also conceived using Dr.

Shettles method -- baking soda, etc. Obviously this method did not work for us (2-296, 76).

Even making a carefully considered decision was not a permanent guarantee -- PAST CHOICES WERE SOMETIMES REGRETTED. People had chosen whether and when to get pregnant, whether or not to abort, and whether or not to get sterilized. Some later regretted these choices. It should also be noted that as many as half of all marriages may end in divorce and that nearly 60% of remarriages can be anticipated to do likewise. Family planning decisions made in one marriage may have been regretted in the next:

At the age of 19 I had a tubal ligation. I had been married for three years and we had one child. I had a lot of trouble on the pill so I had a tubal. I remember the doctor telling me there was no reversal, that it was permanent. I thought my marriage was too (12-1678, 82).

These experiences [vasectomy this marriage, soon followed by conception because of mature sperm still present, and abortion of that fetus] as well as many long talks, have made my wife and I realize, along with other couples we're sure, that we chose the option of a vasectomy without enough information and for the wrong reasons (12-1032, 79).

We have two girls...and I had a tubal ligation last year because we had said that it was fine just with the girls. Well sir, I have regretted since the day I had it done. I am just 25 and I have a feeling of emptiness and incompleteness (12-1857, 82).

Even when an original decision was the "right" one, fate may have unexpectedly intervened. An originally "complete" family may have failed to survive.

My husband and I are desperate for a son. We have three lovely daughters...We have had two sons, neither of whom is living. The first was a normal, healthy child who died...in a tragic accident. The second boy I lost earlier this month at 22 weeks gestation...In addition, I have had three other miscarriages (5-773, 79).

Four years ago we were satisfied with our family. We had two children [1 each sex]...our son died, and because we did not want to raise an only child, we decided to, one, have another child and, two, initiate adoption proceedings for a boy around 3 years old. We had another child, a daughter, but have met with a lot of difficulty in successfully completing an adoption (5-1277, 80).

3. Managing Limited Options

Options available to some couples were not available to others. The wife may have had a PHYSIOLOGICAL CONSIDERATION that limited the number of children she may otherwise have had, or the possibility that she could even become pregnant at all.

We have two girls and since I have to give birth by Caesarean Section, I prefer not to have another child at all unless there's a better than average chance that I might have a boy (1-1199, 80).

Couples might have wanted something NOT YET technologically AVAILABLE:

What can you do about twin boys? Don't laugh! Even pre-selection sounded funny a few years ago (1-1199, 80).

Some people worried about circumstances that will always be beyond the control of those relying on the clinical expertise of others -- the possibility of a MISTAKE.

P.S. What precautions are taken to prevent any mix up with the sperm, that is, a woman receiving sperm from a man other than her husband? (1-1165, 80).

There may have been a MISPERCEPTION of one's own physiology as having gone wrong, beyond one's own control.

I think that there must be something wrong with my genes [has 2 daughters] (1-2646, 84).

My husband has felt that our failure to have a son may have been due to an overly acid environment in my vagina. Would such a condition extend into the uterus and fallopian tubes making conception of a male impossible even with artificial insemination? (7-1550, 82).

This misperception may have extended to what people mistakenly assumed was within their control.

This may seem unusual but my wife and I are very determined and have actually experimented trying to separate my sperm but cannot determine the difference between X and Y sperm, at least not with my small microscope. Also I'm not perfectly clear exactly how to obtain Albumin or if it indeed is necessary to have it (1-2724, 84) [7].

C. INTERACTIONAL STRATEGIES AND TACTICS

Once the couple had decided that sex preselection might actually be an option for them, there were several strategies and tactics they then employed.

1. Strategies for Help-Seeking

One obvious theme was the search for help and/or information. Most people in this study were either SEEKING INFORMATION about the Ericsson technique, or were SEEKING HELP IN FINDING A CENTER they could go to, depending on where they were in this decision making process when they wrote their letters. Information seeking mostly began at an early stage in the sex preselection process. This was illustrated by people who had just heard about the Ericsson method and who needed more concrete or detailed information, or who needed reassurance that what they had heard was correct, or who needed clarification, usually about the competing Shettles or Whelan/Guerrero sex preselection methods. Others were further along in the sex preselecting process and needed OTHER SPECIFIC KINDS OF HELP. Perhaps they had tried another method that did not work, or had obstacles put in their way (by fate or by other people) which they needed help in overcoming. While help was generally sought as an AID TO DECISION-MAKING, some people who had done all they could on their own just wanted to be told what to do next.

Some people ascribed "humanitarian" motives to Ericsson (and other scientists), perhaps assuming or hoping their pleas for help would be willingly met:

I wish to commend you on your research since I believe any advancement in this area will do much more good than harm. It must take much bravery to even enter such "sacred ground" as sex selection (11-618, 79).

Thank you so much for your humanitarian feelings -- you bring hope to so many millions of people (1-1182, 80).

Thank you for being brave enough to develop your sperm separation technique. I'm sure you get threatening mail saying you are tampering with a divine process (2-1590, 82) [8].

You are performing a great service to many who otherwise would have never been told of any experimental methods. We are very glad to think there are people like Dr. Ericsson and are proud of his work (3-2232, 83).

I think the whole idea is great, and I give you a hand for your research. Other people may think it is unnatural, but I think it is great for population control, and also a boon to women. Anyway I just wanted to once again compliment you on your work. I do feel it has a place in our society (4-3236, 85).

These couples obviously believed that the experts were there to provide professional help and services to those who wanted them. This was probably one reason some letter writers had become upset when their own physicians or other "experts" did not (or would not or could not) help them in their quest for a son or daughter.

People often assumed that others would be sympathetic to their personal quest. A sense of violation of trust appeared when these expectations were not met. "Science"

should be there to help, should be the ultimate recourse:

As I am sure you are aware, some gynecologists do not see the need in a woman wanting to become pregnant with her third child. Some will help to a certain extent, others not at all. I think it is about time that women had whatever options medical science can give her, and without so much taboo. I applaud you. [wife has ovulation problems, husband's sperm count "a little on the low side"]...the doctor I have been going to does not want to do a laparoscopy or any testing either because since I have two healthy children he does not see the need in it. This is why I am writing to you as this is the general attitude that I get from the physicians that I have been to see. I have even been told that they would help me if I did not have any children. But because I did that it wasn't necessary (13-2750, 84).

Very few correspondents viewed sperm separation technology as a money making venture, assuming it to be a necessary medical service. A few offered to pay for the advice they were soliciting in their letters, but most just wrote for answers to questions or the latest clinic list, or names of physicians in related specialties (infertility, genetics, etc.).

There was an underlying assumption of HELP-SEEKING AS A LEGITIMATE, LOGICAL, MATTER OF FACT ACTIVITY. People did not have to passively accept what fate might send them in the way of children, but could actively and properly pursue the sex they really preferred. Some people felt, in their particular case, that help was especially deserved or should be forthcoming because of prior unfairnesses of fate:

I am desperate -- very depressed over the prospect of having three boys and never a girl. It doesn't seem fair. Please help me! (3-993, 80).

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While most inquiries were quite polite, others demanded answers:

I wrote to you once already inquiring about your experiments involving the choice of our offspring. I was wanting a daughter, you wrote back saying you had only gotten as far as the male. I have recently read a book called Your Baby's Sex: Now You Can Choose...in this book it shows a picture of what the sperm cells look like under a microscope and it clearly points out the difference between the boy and the girl. If you have already accomplished the boy, it seems the opposite would be the girl. I really don't understand. Please explain...I'm debating about trying the method in the book, but even 80% chance doesn't sound that good. Please write back soon explaining the answers to my questions and retain my address for future use (2 letters, 4-327, 76).

2. Improving the Odds

A major part of these help-seeking tactics had to do with discovering, then coming to terms with, the probabilities for success -- or failure. Nature has set up 50-50 odds for the sex of any particular child. People who had a definite goal of one or the other sex wanted to influence, change, or somehow IMPROVE THESE ODDS and modern technology now allowed them to do so. But better odds are still not certainty. A one in two chance of getting a boy may not be good enough, especially if those same odds have resulted in a series of girls. Much better are the 80-20 odds offered by the Ericsson method. The problem here is if this is to be the couple's last (or only) "flip of the coin." Probability statistics work best and are more clearly understood when large numbers are involved. If everyone had ten children, we would all understand the binomial theorem more



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intuitively. But in modern families the coin is tossed only once or twice, and often with enormous stakes riding on the outcome.

Nature's (or God's) 50-50 odds were perceived by many as not being good enough. People said they wanted to "better" their chances, "increase," "improve," "shift," or "maximize" them. But to understand probability theory is to be aware that it takes a great many events (i.e., many births) for the statistics to be meaningful.

We have two boys...and would very much like to balance our family with a baby girl (or two). However, the 50-50 chance of another boy makes us very reluctant to plan another pregnancy (3-759, 79).

Those 50-50 odds can be deceiving. If you have a son, it seems that naturally, you'll have a daughter. When you think about it, 50-50 is not good at all when you are staking all your hopes and dreams on that last chance to have a daughter or son (9-1463, 81).

However, if the statistical odds of our having a son can be increased to a 75 percent chance, we are most interested in being considered as participants in your program (11-1131, 80).

If I had at least tried the best available means of maximizing the possibility, I would be prepared to accept the risk of ending up with a third son. I realize that even with assistance, there is no certain method and must face the possibility of not succeeding (9-3557, 87).

Some people, and some of their physicians, felt that the ODDS WERE STACKED AGAINST THEM -- that is, they were worse than 50-50. These couples generally had two or more children of the same sex, and fell into what statisticians call the "TREND FALLACY" -- the belief that what has hap-

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pened before is most likely to happen again. People who had children of all one sex and therefore were unwilling to try again, or those who cited a family history of the "wrong" sex belong in this category:

We feel, however, that if I were to get pregnant again, chances are we would have another girl (1-3271, 85).

We have two sons and would dearly love to have a daughter. My doctor told me that if we were just to have another child, the chances are very great that it would be another boy (3-2184, 82).

My OB/GYN has laughed at me when I've talked about any way to sway the odds in our favor and said we would probably always have boys [now have 3] -- statistically speaking (4-3068, 84).

The obverse of the trend fallacy is the GAMBLER'S FALLACY. This is the belief that after a series of heads, tails are "due," that the dice "have a memory." People in this study who had relied on this "method" had already tried and failed.

There is always the possibility (and it was often a source of inquiry) that sometimes there might really have been odds "stacked" against a particular couple, or a family [9]:

My husband's family has had only male births for the past five generations. It seemed remarkable that a female has never been reproduced by my husband's family. Four years ago we also gave birth to a son; for the past four years we have been trying to research why this occurs. [a chromosome study was done and found a Y longer than normal] (9-3171, 84).

Another instance of CALCULATING THE ODDS was in the area of genetic problems. As the profile of families with a

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genetic problem showed, most people were aware of the odds of a genetic problem being transmitted to a son or daughter and were trying to also factor in the odds of successful sex preselection.

I have been told I have an 80% chance of producing a healthy son. There is a 20% chance I could have a son afflicted with hemophilia. While my chances of not having a hemophiliac are good, we would like to take every precaution available to insure a healthy child. The odds of having a daughter from your method seem very good (10-1311, 81).

Some people, of course, wanted to "BEAT" THE ODDS altogether, concluding that even 80-20 odds were not good enough.

I've considered...Shettles' method...and the sex selection diet...but rejected these methods as the chances for success are not high enough (3-966, 80).

I'm debating about trying the method in the book, but even 80% chance doesn't sound that good (4-327, 76).

We are ready for artificial insemination, if there was some assurance of my receiving only female sperm (3-997, 78).

These people were in the most difficult position, since most sperm centers would not accept them unless they were prepared to accept a child of the unwanted sex. So, rather than having 80-20 odds at the clinic, they were now back to nature's 50-50 odds.

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D. CONSIDERING ADOPTION AS AN ALTERNATIVE

At first glance, adoption would appear to offer a 100% chance of getting a child of the "right" sex. People could specify what they wanted to the adoption agency, then just sit back and wait. Upon closer inspection, however, this was an option for very few couples in this study. Some rejected the idea of a child "not our own." Others rightly foresaw difficulties in the adoption process, especially if they already had children of their own. And it is commonly known that even a successful adoption proceeding can take many years.

The adoption decision was one that took various considerations, conditions, and interactional strategies into account. Some people HAD CONSIDERED ADOPTION, but did not see it as a good choice for them:

We really believe that artificial insemination is the most viable alternative for us (as opposed to adoption or having the vasectomy reversed) as my wife is in perfect health and perfectly able to carry a baby of our own (12-1032, 79).

My husband doesn't want to adopt and is really only going along with this for my sake (3-966, 80).

Other people did WANT TO ADOPT, or at this point in their deliberations WOULD CONSIDER ADOPTION:

My husband so very much wants a boy. Not long after having my last baby girl he brought home all kinds of information about adoptions in hopes to get a boy somehow (12-1110, 80).

We were considering adoption. But we would love to have a daughter between us (3-3317, 85).

Some would be WILLING TO ADOPT IN THE FUTURE, but not for their next pregnancy:

I feel very strongly about this since I expect her to be my only child I give birth to. My second I expect to adopt in my later years (11-2922, 84).

I would like to give us a son, then have my tubes tied...if I ever wanted more I would adopt (7-2618, 84).

Some people did want to adopt, but FORESAW DIFFICULTIES IN ADOPTION:

We have discussed adoption and probably will adopt even if we have a girl of our own if we can afford it. The problem with adoption is how hard it is to get a baby and we hate to take one away from people who can't have any when I can (3-1030, 79).

My husband and I would dearly love to adopt a daughter, however we know that adopting a white, infant girl seems impossible anymore now that abortions are legal and childless couples would be "first in line" so to speak if an available baby was up for adoption -- we can understand that. But of course, we would prefer to have a natural girl ourselves if such a technique was available to us (3-2820, 82).

And some couples had TRIED AND FAILED TO ADOPT:

You see I got my tubes tied after my third boy, I thought it was easy to adopt a girl. I was much too young to have my tubes tied anyway. So now I have been going nuts for 3 years because we can't adopt a girl (12-1434, 81).

We have tried to adopt a girl but in [home state] priority is given to families with no children. This is as it should be and we understood this. We have also tried privately and through several church groups but with no success (3-1135, 80).

I suggested adoption and we were told you cannot adopt if you are able to have children unless you are interested in a child of a different race, an older child or a handicapped child (3-1512, 82).

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My husband and I have three sons and desperately want a girl to complete our family. Because of the negative feedback we have gotten in regard to adopting a baby girl, we are seriously considering pregnancy again (5-203, 79).

Thus one of the more obvious alternatives, adoption, was either not available or not acceptable to the majority of these letter writers, most of whom already had their own biological children.

In the following chapter I examine more closely these social contexts, conditions, interactional strategies and tactics, and consequences that affect the sex preselection decision.

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- [1] Capitalized words or phrases in the following sections indicate memo titles.
- [2] Where themes are similar to those that appeared in the content analysis coding, only a few quotes are given.
- [3] Even coding "need" a son or daughter would not have been adequate here.
- [4] See Section D. below for a discussion of adoption as an alternative.
- [5] Which could have been anywhere from one to seven.
- [6] See Appendix B for examples of how confidentiality is dealt with at some of the centers using the Ericsson technology.
- [7] There are 200 to 300 million sperm in an average ejaculation.
- [8] Of all the letters I read, only two were negative. One was from a woman who mistakenly assumed that the method was always used in conjunction with abortion for the "wrong" sex. The other was an unsigned letter that consisted only of a few Bible verses and a rather vague threat.
- [9] I am unaware of any research into this area. If some couples really do have different "odds," it would be interesting to discover what accounts for these differences.

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CHAPTER 7

CONFRONTING THE DILEMMAS ON THE PATH FROM SEX PREFERENCE
TO SEX PRESELECTION

In this chapter I focus first on the basic steps in the path towards sex preselection, elaborating on the concepts that were briefly introduced in the previous chapter (social context, considerations, interactions, strategies and tactics). I then discuss dilemmas that arose for couples who were travelling this path. In the concluding chapter I expand this focus to consider the more general process of "medical decision making" or "medical help seeking."

Thus, while the present discussion is restricted solely to one sex preselection method and the people who have inquired about its use for themselves, the key features of this process have implications beyond the immediate focus. The process can be expanded to include people seeking other kinds of reproductive assistance, people faced with a medical decision of a very different kind, and people who are faced with a personal decision of substantial consequence which cannot proceed without the expertise and active intervention of others.

A. THE PATH FROM SEX PREFERENCE TO SEX PRESELECTION

In this section I briefly outline each of the steps along the path towards sex preselection using the coding paradigm suggested by Strauss (1987), which analyzes conditions or circumstances that people define as salient and meaningful; interactions among actors, with specific attention to their strategies and tactics; and consequences of this interplay between definitions and interactions. I have added a further element to the paradigm and also analyze the larger social and cultural contexts within which couples were deliberating.

In this analysis I distinguish between conditions and contexts in the following way: conditions tend to be immediate, local, and recognized, while contexts are more long-term, global, and generally unapparent or taken for granted as "the way things are" on a day-to-day basis. Although I discuss each of the five coding elements as if they were separate phenomena, most were complexly intertwined and co-varying. Many tended to blur together, and each could be only analytically distinguished and did not occur apart from or without influence from all the others. A change in circumstances in any element of the paradigm affected the participation and understandings of the actors to a greater or lesser degree. Moreover, as a couple went from step to step along the path, previous strategies and tactics often created new conditions and consequences.

The "normal" or "typical" path for the couples in this study was as follows, with the understanding that this path might have diverted to a different path or could have ended at any step:

- (1) The couple, or at least one partner, had a definite preference for the sex of their next, first, or (most commonly) last child.
- (2) They knew of the existence of and were willing to use (or to consider using) a sex preselection method.
- (3) They became aware of the Ericsson method.
- (4) They requested and were sent the brochure from Gametrics.
- (5) They made contact with the nearest center for more information or for an appointment.
- (6) They met the clinic criteria and decided to attempt the method.
- (7) They successfully conceived and gave birth to a child (which may or may not have been the desired sex) by this method.

Only people who had completed the first four steps were in this study: all had written for more information about the Ericsson method and/or for the Center list. While most had not YET gone beyond this step, enough had done so to provide at least some information about the remaining steps.

Following this outline of the path from sex preference to sex preselection, I focus on the first four steps of the path in section B -- "Confronting the Dilemmas" and also integrate some themes from Chapter 6 into my discussion.

1. Preference for Sex of Offspring

Regardless of methodological shortcomings, the literature on sex preferences clearly showed that many people did have a preference for the sex of their offspring. The wider social and cultural contexts in the United States within which these sex preferences for offspring originated were themselves complex and contradictory. I would argue that these contexts were among the most important influences that impelled people to take this first step along the path of sex preselection. Although there had been a societal trend towards gender equality by the time of this study, this trend still coexisted within a context of traditional sex roles.

People in this study may have found themselves torn by conflicting values: on the one hand holding all children regardless of gender to be of equal merit, and on the other hand still "needing" a son to carry on the family name, or "needing" to have a son or daughter for various other (however ill-defined) reasons. Even among those who perceived sons and daughters as of equal worth, the experience of having both was sought. The two sexes were still perceived as somehow, and importantly, different:

We were overjoyed at the birth of our daughter and she has given us great pleasure. We always

knew we wanted a second child. For the variety of experience we would like to have a male child and the fact that research like yours could give

us the ability to make choices previously left to random chance is truly intriguing to us (2-1698, 82).

Had this same couple had a son first, they gave the impression they would be equally likely to want to select for a daughter as a next child.

There were several conditions under which having a sex preference was likely to occur: having "always" wanted a son or daughter, or wanting a son or daughter for various other reasons, AND having already had children of the opposite sex. Those who wanted a firstborn or only child of a particular sex often were referring to THIS marriage; in a previous marriage they were likely to have had children of the opposite sex. Only among couples with a genetic problem were more traditional reasons for a sex preference absent.

The interactions of actors that were salient at this stage in the path towards sex preselection were presumably many and varied. Since I have little data on these or on strategies or tactics at this stage in the process, I only mention the theoretical possibilities. Looking first at the couple, their interactions occurred in a context of personal biographies, with each partner having had a lifetime of experiences with people of both sexes, with same- or opposite-sexed siblings, with parents, and with hundreds of other people who can be presumed to have helped shape and create their attitudes and desires. The couple also shared a biography, particularly if they had already had children.

They will likely have had discussions about family formation including hopes for the sex of future children. If one spouse had a very strong preference, the other might have been willing to do whatever necessary to ensure the desired son or daughter. Conversely, the one might have tried to convince the other that sex of offspring did not matter all that much. The consequence of having had a sex preference that most concerns us here is that the person attempted to act on that preference. This, of course, was a necessary requirement for those who were to continue along the path.

2. Willingness to Consider Sex Preselection

Social and cultural contexts that allowed, contributed to or even encouraged use of a sex preselection method were several. First, there was the trend towards smaller families [1], reflected either as a personal preference, as a result of a combination of circumstances, including economics, late marriage, and serial marriages, or as a consequence of the belief in controlling population growth. When social norms are for five or six children, chances are quite good that at least one child of each sex will sooner or later appear [2]. If families plan only two or three children, however, the probabilities of them being all the same sex are significant [3]. Given the trend towards the two-child family, sex preselection for the second was a logical choice for those who had a strong preference for one of each (or for the one they did not yet have). It was also a

logical choice for the person in a second marriage, especially if only one more child was desired and if the previous children had been all of one sex.

Another element in the larger sociocultural context was that there had been a recent revolution in reproductive technology, with sex preselection only one among many medically assisted reproductive techniques available and widely discussed in the popular media. This, along with the commonplace reliance on medical or other "experts" for solutions to a variety of intimate problems rendered sex preselection as just one among many options under consideration [4].

The salient conditions at this step were that the couple either now had children of all one sex and only wanted one more addition to the family (but did not want another child of the same sex), or that one or both spouses strongly desired a first born (or only) child of a specific sex (in the current marriage) AND were willing to take action to achieve their goals.

The most important interaction here was that between the partners. First and foremost, they must have agreed to have another child. And unless both had the same degree of commitment to sex preselection, a certain amount of negotiation was necessary before using a method entailing the full participation of both. It was in this interaction that tactics and strategies become important. How to persuade

(or dissuade) the other? In my data possibilities included statements from one partner that the other either opposed the idea or, at best, was reluctantly willing to go on "one more time" for the child of the desired sex, or that they did not want this method. Relatively few letters discussed differences, however, and most spoke of what "we" desired.

Another series of strategies and tactics were aimed towards discovering if sex preselection were even possible, and if so, how to go about doing it. At this juncture people could have tried one of the "at-home" methods of sex preselection. As the letters showed, many did. This was also the point at which confusion may have resulted, especially if the two contradictory methods of timing of intercourse were discovered, or if the controversies over sex preselection in general were encountered:

I have read numerous books on this subject of pre-selection and am having a hard time determining the facts from the myths (11-3012, 84).

Some consequences at this step included (1) dissension between the spouses because of differing degrees of sex preference and ongoing arguments about it; (2) a discovery that others whom one normally would have expected to be supportive (family, friends, physicians) were not at all supportive of sex preselection; or (3) that an at-home method had not worked as anticipated. Another possible consequence was that the couple sooner or later would hear about the Ericsson method. This last consequence, of

course, was a necessary one for the people following the path described herein.

3. Encountering the Ericsson Method

An important social and cultural contextual consideration here was that reproductive and other medical technologies were ongoing "hot" topics for magazine and newspaper articles, books, and television and radio specials and talk shows. After the initial discovery had been introduced and publicized, continual updates by media people were sought. Had the statistics improved? Had the techniques been upgraded? Were more facilities that provided the technique now available? Had unexpected consequences showed up? New discoveries were made (as in achieving a female selecting method) and reported. Multiple points of view were sought and disseminated, conflicting claims were made, controversy was fueled (and welcomed by the media), and the debate and "news" expanded. If a couple with a sex preference had not yet heard of sex preselection, they soon would [5].

I was very excited when I read the article because I had no idea that sex selection was even remotely possible (2-3040, 84).

This process did not happen in a linear fashion. Technical journals were sometimes slow in reporting findings, while the popular media rushed to be the first to break the news which was then apt to be presented in an overly simplified manner. Reporters with different depths of background

information and experience, along with publication lag times, added to the confusion [6].

I recently read of your clinics in two separate publications. There seemed to be a discrepancy between the two articles regarding sex selection for girls. One article appeared to indicate that the process for girls is now being done, while the other said it was in "early clinical stages." Both of these articles were printed the same week. Could I get some clarification on this issue? (8-3394, 85).

A key interaction often was with the friend, family member, or physician who first brought the Ericsson method to the person's attention. While some people reported that help was often not forthcoming, others mentioned that it had been their own physicians who furnished them with information about this method and encouraged them to investigate further.

An important condition was when -- in what stage of its technical development -- information about the Ericsson method was first encountered. For people in the earlier years of this study, the method was limited to male preselection only and was offered at only one or two places. No matter how much a couple might have wanted a girl, female selection was not available until 1984. Another important condition was what was understood about the method. Both understandings of how the method worked and misunderstandings about the method were important in the decision making process. People took action on the basis of incorrect

information as easily as they did with correct information. Both their actions and the consequences then differed.

One set of strategies and tactics at this step was to seek more information about the Ericsson method, and in particular, to find out if there was a center performing the technique nearby. Another set of tactics included further investigation into other methods and/or trying to convince a reluctant spouse that the Ericsson method was not all that bad. Some couples disliked some requirements of this method, while others judged it better than the perceived alternatives.

Prior to our interest in the work you have done, we had studied Shettles methods of sex selection, and have come to the conclusion that despite the degree of success claimed (80% I believe) we feel it would be much simpler to just try and have a separation done (2-300, 75).

Several consequences flowed from having found out at least something about the Ericsson method -- (again, whether or not such knowledge was accurate). First, they had to determine if the procedure itself one that they were physically qualified for and morally comfortable with. Second, the couple had to decide whether or not to attempt it in light of the less than 100% chance of having a child of the wanted sex. They must, in other words, have been willing to run the risk of having a child of the unwanted sex. Third, they must have defined for themselves what "good" or "better" chances meant to them, and if a 75-80% chance was good enough:

My engineer husband looks at percentages and the G.H. article said that your success rate is 70-75%. It stated that "improvements...will probably raise this figure to 80-85%" To my husband that rate is still questionable, but I'm ready to give it serious thought (2-1549, 82).

For some couples, as we have seen, another child of the same sex would have been welcome:

We would like to have one more child, and we would really like to try for a little girl. If we try and we have another boy, we would be happy and love him just the same. The only thing is, since the opportunity to give it a try is there, we would like to go ahead, instead of always wondering and wishing we had (4-3236, 85).

4. Receiving the Centers List

Many couples wrote in response to a television broadcast, which either gave the Gametrics address or provided a place to write to for further information. In the latter case, either their original letters were forwarded to Gametrics, or they were sent the address by the television station and then wrote directly. Other couples came across the Gametrics address in magazines, or at least found the name of someone or someplace to search out. The important social and cultural factors here were several. First, widespread media attention focused on the names "Gametrics" and "Ericsson." If an address was not immediately available, there were other recourses. Some people just waited:

I have been searching for you for about 2 years. I had heard about you some time ago but had no name to go by in locating you...(11-2922, 84).

Others used local libraries, which are found in almost every city and town and nearly all of which keep popular magazines on hand:

I was recently in a public library researching the possibility of "sex selection" of a child when I found an article in Good Housekeeping magazine (Feb. '79 and Aug. '82 issues) wherein you introduced a method of selecting the sex (mainly male at that time) of an unborn child (8-2427, 83).

Many people had saved issues of old magazines, or had clipped and saved articles from them, sometimes for years:

If you can't help me I don't know what I will do. I have written to so many doctors across the country, and have kept files of newspaper and magazine clippings on this subject for the past 11 1/2 years, since my second son was born [now has three] (3-966, 80).

Second, it is not uncommon to write or telephone for information from "experts," (as is evidenced by the popularity of advice columnists and 800 numbers).

Hi! I never ever thought I'd be writing in response to any ads or articles in my life (2-1204, 80).

I just read about your sex selection technique and I am so excited that I can hardly sit still. I would love to know if there is a center near me and all about your technique (2-1952, 82).

This was a critical juncture for two reasons. First, it was a direct action step. As previously noted, we do not have many studies that show the link between attitudes and behavior. Second, this was the point at which people entered this study: they wrote and requested the list of centers and their letters were then forwarded to me. All of

the letters that went beyond just requesting the Center list (and that were inquiring about sex preselection for themselves or for a client) formed the data base for the study.

The most important interaction here was represented by the letter itself from the person or the couple wanting to sex preselect (or at least wanting to find out more information about it). As shown by the quotes from many of these letters, these interactions took the form of requests, pleas, questions, demands, appeals, volunteered information, reasons, rationalizations, justifications, excuses, offers, suggestions, and propositions. Many, if not all, of these were strategies and tactics as well, aimed at persuading spouses, clinicians, and anyone else involved in the decision making process.

One prevalent set of strategies and tactics at this point was an effort to find out specific details about the method. In addition to requesting the list of centers, many people who wrote to Gametrics had unanswered questions. People in the earlier years generally received a personal reply from Dr. Ericsson, particularly before a brochure listing the centers was available. He would answer questions and furnish the address of a center that could perform the procedure. As mail became heavier and the list of centers longer, a secretary sent out the centers list and few letters then received a personal reply.

Assuming that couples then basically understood how the method worked, the next step was for them to decide whether or not to actually use it (or at least attempt to use it).

5. Contacting the Nearest Center

An important social and cultural context here was that as the numbers of centers offering the Ericsson procedure increased, so did an awareness on the part of center personnel that certain social issues were of growing concern. Some began to adopt "gatekeeping" procedures that discouraged or even prevented some potential parents from making use of their services. For example, one center stated the following in its brochure:

Psychological studies have suggested that the first child is psychologically advantaged. To address this problem as well as the problem of changing the gender composition of the society, we will not provide this service for couples who have no children or who desire only children of one sex. The exception is the couple with a known X-linked disorder (Univ. of Minn. 1986).

Other factors in the wider contexts within which sex preselection clinics proliferated included a falling birth rate and a growing number of obstetricians. New specialty areas in infertility and reproduction were therefore attracting many practitioners. Clinicians who might not have had much interest in or anticipated much potential income from sex preselection alone were forming new practices around all the new reproductive technologies. The Ericsson sex prese-

lection technique fit quite well in such practices, particularly with its added benefits for infertile males.

I found few details on interactions between spouses or among other interactants in the letters concerned with this step along the path to sex preselection. One of the most important questions raised by this study deals exactly with this step: once the location of the nearest clinic was ascertained and details of the procedure were understood, why did some couples proceed along the path but others stopped? How was the decision made that a sex preselection attempt using this method was just not worth the effort? Under what conditions did couples take the next step?

6. Attempting the Ericsson Method

Very few letters indicated interactions, conditions, strategies and tactics, and consequences for this and the next step, hence discussion here is quite brief.

The social and cultural contexts within which sex preselection operated (planning of births, medicalization of expertise, new reproductive technologies, and so forth) still applied to this and the following steps. Another pertinent factor here was that most people had at least some built-in vacation time from their place of work. Some couples said this would be utilized for travelling to a center. Some occupations afforded couples more opportunities for travel and vacation time than others, and many of

those who mentioned that they or their spouse worked for an airline company did so in the context of saying that distance to a center would not create a barrier for them.

The interactions at this step between husband and wife were focused on the intricacies of the method itself: keeping an accurate temperature and ovulation chart, refraining from unprotected intercourse (i.e., using some form of barrier method of contraception), going to the center at the correct time, successfully obtaining the semen sample, etc. [7].

Some conditions applicable at this step included the center's not being available at ovulation time, inability on the husband's part to obtain a semen sample on demand, carelessness in keeping temperature and ovulation charts, failure of the barrier method of birth control with a resultant "unassisted" pregnancy, poor semen quality, failure of sperm to separate into better than 50-50 fractions, and various stress factors that could adversely affect ovulation and/or sperm production.

One major consequence occurred when conception did not take place after the method had been attempted. Then a decision had to be made to either try for a few more cycles, to try again at another time, or to give up.

[from a couple who attempted the method] Unfortunately, I have to inform you that my wife has menstruated exactly on her regular time. I regret very much that the very kind efforts by Dr.

Glass and yourself have not been to our mutual advantage (1-289, 76).

We did temperature charts and went to [a center that does female selection] for insemination. Sadly, it did not take. The cost was approximately \$575. Plus air fare and motels ending up costing close to a thousand dollars. I only wish there was a reduced fee for subsequent visits after the initial visit (4-3174, 84).

As of August, 1988, the Berkeley center had performed the greatest number of completed sex preselections in the United States (Ericsson 1988). They reported that 40% of the couples attempting sex preselection had dropped out after a first unsuccessful attempt (Jancin 1988). This demonstrates vividly that people may have moved off the path at any step, even at a point close to "success."

Another possible consequence was that conception did occur, but not from this method [8]. One couple who had been attempting the method before any centers had opened spent the better part of two years trying to coordinate ovulation time with their own busy schedules and that of a clinician and Dr. Ericsson. But an accidental pregnancy occurred meanwhile. Then:

Due to another ironic twist of fate, I had a miscarriage early this month...both my husband and I felt the loss deeply, in spite of this pregnancy being most unwelcome at the outset (2-291, 75).

7. Conception and Birth Via The Ericsson Method

There are several consequences at this step: the couple had a child of the wanted sex; the couple had a child of the

wanted sex but something unanticipated also occurred (a same or opposite sex twin, a child with a birth defect or other problem); or they did not get the sex they wanted. Those who got what they wanted would presumably live happily ever after (or perhaps be back for seconds):

I was a successful recipient [of sex preselection for a son] at one of the sperm centers. We have two girls and our baby son. We would like very much to have one more son (14-1510, 82).

In the next section I delineate the specific dilemmas that couples faced at each of the first four steps in the path towards sex preselection, especially with reference to specific themes that emerged in the grounded theory analysis (as discussed in Chapter 6).

B. CONFRONTING THE DILEMMAS

In the context of sex preselection, I define "dilemma" as a choice among two or more alternatives when each alternative is perceived to have both costs and/or risks, as well as benefits [9]. For some couples there were few or no dilemmas: sex preselection was the clearly perceived best choice, both partners were in complete agreement, there were no mitigating physiological conditions to preclude using this sex preselection method, they were willing and able to afford the necessary time and expense, and there were no clinical obstacles placed in their way. But for many other couples, as we have seen, the process of encountering and resolving dilemmas was not quite so straightforward.

At the first and second steps -- having a preference for the sex of the first or next child, and being willing to consider sex preselection -- one dilemma occurred when the partners did not experience the same degree of desire for a son or daughter. While couples did not always have equally matched preferences, the lesser involved partner must at least have been willing to "go along" with the more determined partner and to accept the consequences of whatever actions were jointly agreed upon. This dilemma seemed to be especially acute when there were already several children in the family; while a last child of the opposite sex might have been very welcome, another child of the same sex most definitely would not. This reiterates the dilemma mentioned in some of the sex preference literature, that of choosing between sex and number of children. Dilemmas encountered at these two steps also point to some of the conditions under which the "internal limits" (as discussed in Chapter 6) might have been set or become altered: number of children, tolerance of one sex, desperation, endurance, perceived limits to one's own abilities to have the child of the wanted sex, and agreement between spouses.

Another dilemma at this step occurred when tension arose between "good" and "bad" reasons for wanting a son or daughter, particularly when the "good" reasons were perceived or felt as somewhat weak or were based only on a vague "need." People who found it difficult to explain both their attachment to and satisfaction with their present

children in the face of their simultaneous feelings of loss or incompleteness due to the "missing" child of the other sex may have had difficulty in resolving this dilemma. Tensions around these perceptions were often strengthened by the unexpected and abrupt sentiments expressed by others as to the unsuitability of having -- and certainly acting upon -- such sex preferences.

At the third and fourth steps -- encountering the Ericsson method and receiving the centers list -- awareness of new information often raised further dilemmas. Competing methods and conflicting claims might have posed one dilemma -- which was "best," which had no legitimacy at all? It was during these steps that the various other limits discussed in Chapter 6 became evident: circumstantial limits such as resources, the biological clock and other physiological barriers; and external limits imposed by the Ericsson method itself or by clinic rules and guidelines. Were the costs of travelling to the nearest center several times within the couple's budget? Given the location of the center and all the necessary time and money and effort involved for perhaps several insemination attempts, were the couple's resources matched by their determination to sex preselect? Considering the realistic odds for success, was it worth the risk of failure? If there was a physiological barrier, what were the costs, risks, and advantages of working around, or overcoming it? With what degree of success? For those couples who did confront dilemmas, how were they resolved?

What considerations weighed heaviest in their calculations? Which couples were most likely to continue along the path of sex preselection?

While I have shown the dilemmas that were encountered at each of these beginning steps, the dilemmas and the steps themselves still remained inextricably entangled with contexts, conditions, interactions and consequences. Somewhere in all this, the decision was made about whether or not to use the Ericsson method is made.

C. MAKING THE DECISION ABOUT SEX PRESELECTION

The social context within which sex preselection was considered offers at least a partial explanation for the origin and resolution of some of these dilemmas, which in turn helped determine whether or not a couple actually went on to use the technology. The trend for smaller families, based on perceptions of financial and emotional resources necessary to raise "quality" children, and the availability of effective birth control techniques with which to plan them combined to create for most couples the expectations for two, or at most three, children. Yet, while the more traditional social and/ or economic reasons for "needing" sons had diminished, and while new social and economic opportunities for daughters had simultaneously increased, many people still perceived an essential difference between children of both sexes and wanted at least one of each. At

the same time, reproductive technology had advanced far beyond simple contraception and now included sophisticated methods with which to bypass infertility, improve semen quality, provide donor sperm, eggs, and even embryos, reverse previous sterilization operations, acquire knowledge about the developing fetus and abort those with undesired characteristics, and, of course, choose the sex of a child prior to conception. Taking into account the growing menu of reproductive choices, sex preselection was relatively cheap and easy, had few risks, and offered good chances for success. In such a context of multitudinous choices, as Rothman (1984:30) points out, the one choice couples might have felt they had lost was the freedom to not choose:

It seems that, in gaining the choice to control the quality of our children, we may be losing the choice not to control the quality, the choice of simply accepting them as they are.

So for some couples who might have entertained a preference for a boy or a girl, this larger social context may have contributed to a new dilemma -- must they now seriously consider a technology that would allow them to act on their preferences [10]?

Regardless of the origin of the preference for a child of a particular sex, the sex preselection technique itself offered other conditions of choice for couples who were seriously contemplating its use. Since results were uncertain, couples had to weigh the probabilities of success or failure against the costs -- the time and effort needed to

predict likely ovulation dates, the avoidance of unprotected intercourse for a period of at least several months, and the time, effort, and expense necessary for travel to a center more than once. As we have seen, some of the items in this calculus of resources included conditions which were self-imposed, while others were of external origin. The latter posed one set of relatively clearly defined constraints and choices: physiological barriers foreclosed certain options and limited others, as did clinic locations and guidelines, as did the technology available at any given time. But self-imposed conditions and limitations (total number of children desired, tolerance for children of only one sex, and needing or wanting a son or daughter, for whatever reason and to whatever degree) which actually were more flexible [11], may have been perceived to constrain choices even more than did externally imposed alternatives.

Once a clear picture of all the considerations, options, and possible consequences emerged, the couple had to then prioritize their wants and needs and decide what to do. While I have little data on this key interaction, with its attendant strategies, tactics, compromises, promises, requests, and sentimental and emotional work, some inferences are obvious. Most couples must have chosen not to continue along the sex preselection path, since the letters from people inquiring about the Ericsson method numbered in the thousands, and to date only a few hundred women have given birth (or are now pregnant) using sex-preselected sperm.

Others chose to wait -- for improvement in the odds, for a female-selecting method, or for a center to be established in (or at least closer to) their home town.

And a few decided to try the method -- at least once.

To quote again from a letter previously cited:

The only thing is, since the opportunity to give it a try is there, we would like to go ahead, instead of always wondering and wishing we had (4-3236, 85).

This compulsion to leave no stone unturned, in conjunction with the reservations people also had about the demands of the Ericsson procedure, might explain why so many couples stopped after only one unsuccessful attempt.

[1] By 1988, only 5.6% of all families had three or more children. The average family contained only 3.17 people, the lowest figure since 1940, when such statistics were first gathered (Rawlings 1988).

[2] In a five-child family, the probability that there would be at least one of each sex is 15:16; in a six-child family, 31:32.

[3] In a two-child family there is a 1:2 chance that they will be both boys or both girls; in a three-child family there is a 1:4 chance that they will be all one sex.

[4] While there might be many religious, ethical, and moral objections to using such technology, none of the couples in this study indicated that they shared these concerns.

[5] For instance, Dr. Ericsson made over 100 appearances on national and international television programs between January, 1973 and March, 1987 (Ericsson 1987).

[6] My own experience with reporters confirmed this. At one end of the continuum were the very few who had thoroughly researched the literature and who asked thoughtful and penetrating questions. At the other end were most of the rest, who had just heard of sex preselection, who did not quite know what it entailed, but who "smelled a story" and would really have liked to hear something juicy or startling, and who were very disappointed when I did not confirm their expectations that everyone writing in wanted a first-born son. Many in this latter group also requested copies of all my references and papers, to be rushed to them immediately, as they were working under a tight deadline. I did not comply with these requests, which doubtless annoyed them further.

[7] See Appendix B.

[8] If unprotected intercourse occurred at any time during the wife's cycle, particularly around ovulation and the artificial insemination attempt, it was possible that a natural conception would occur, and therefore the odds of having a child of the wanted sex would drop back to 50-50. Yet a further consequence was that a conception did occur using this method, but so did either a miscarriage or a multiple pregnancy (three couples attempting a daughter had a set of boy and girl twins -- truly a "mixed blessing").

[9] One dilemma not mentioned by people in this study was whether or not to "tamper with nature." As noted in Chapter 3, people would have resolved this dilemma, if it existed at all, prior to writing for more information. Those who were not willing to use medical technology would not pursue the matter further. Such people would rely on nature's odds,

and would presumably reconcile their initial disappointment (if they didn't get what they wanted) with the belief that they got what God (or fate, or nature) intended them to have. As we have seen, some people in this study mentioned that while they would ultimately be content with whatever they got, they were also willing to attempt to influence the odds in their favor:

Should the fourth be another boy, we would be delighted with this as the Lord's will, but we believe He won't mind our trying for a girl! (3-1552, 82).

[10] For other couples, as we have also seen, the knowledge that sex preselection was now available strengthened -- or even created -- the desire for a son or daughter.

[11] At least from the less-subjective, more "rational" viewpoint of an outsider.

CHAPTER 8

SUMMARY, DISCUSSION, AND IMPLICATIONS

A. SUMMARY OF FINDINGS

In the fifteen years spanned by this study, the Ericsson method of sex preselection was most attractive to couples who had not managed to have a child of each sex after relying on nature or an "at home" method, especially if they had also nearly reached (or even exceeded) their ideal family size. These couples were interested in preselecting the sex of their last-born child.

In rather dramatic contrast to studies of sex preferences of offspring, fewer than two percent of the 2,505 couples studied here wanted to select for a first-born child using the Ericsson method. Nearly seventy percent of the couples had either two or three children of all one sex and wanted just one more child -- of the opposite sex. Only slightly more than three percent gave a genetic reason for sex preselection. Many of the couples who said they had no children yet were referring to their present marriage, and

often did have one or more from a previous marriage -- again, mostly same-sex. Although nearly sixty percent of the couples mentioned no reason for their inquiry into sex preselection, they did have an average of 2.3 children in their present families.

Most couples were not desperate to have a son or daughter, and were primarily interested in tilting the odds more in their favor. Given the reported number of births from the centers using this technology over the past fifteen years (approximately 600 as of October, 1988), the majority of couples in this study must have decided not to attempt sex preselection using this method. My interpretation is that initial interest was piqued for these couples by media generated reports which highlighted successful couples, but which glossed over the exact requirements of the method. Once the details of the method -- the many-months long commitment, the coordinating of personal and clinical trajectories -- and the probabilities for success or failure were clearly understood, most couples decided it was not worth the effort. Some of these couples no doubt decided to end their childbearing with all same-sex children, while others might have made "one last try" using an at home method (or might even have become accidentally pregnant). Others might be waiting to see if the odds improve, or until a center is located nearer to them. Some may yet use the method, but only after a further search convinces them that it really is the only one likely to improve the odds, and

only when the biological clock seems to be closer to running out. On the other hand, it is likely that the majority of couples who did make use of the technique were among those who were in this study [1].

It is very clear that population imbalance in the U.S. will not occur as a result of the Ericsson technology -- too few sex preselected children will be born to have much impact on either the birth rate or the sex ratio. As noted in Chapter 1, only one in 100,000 children has been born using this method of conception, and now that both male and female selection is available, it is likely that as many couples will want to select for daughters as will want to select for sons. While the worst-case scenarios (predicted by those who assumed that a 100% effective, cheap, and easy method of sex preselection was just around the corner) do not seem imminent, this is not to say that there is no reason to be concerned about parents who want to choose the sex of their children. There is still the issue of the commodification of children -- of pre-arranging them to fit the ever-expanding expectations that many parents have come to have for their sons and daughters. There is also the possibility that post-conception methods of early detection of fetal sex and abortion of the "wrong" ones might become popular. There is even the very remote possibility that a cheap, safe, and 90%+ effective method of sex preselection will someday become available. But, I would argue, there is

also time to explore these issues well before the use of such technologies accelerates.

Why is there such an apparent contrast between this study and previous studies of sex preferences, even studies that reported that a high proportions of respondents said they would use a sex preselection method, especially for a first-born son? One reason might be due to well-known weaknesses of surveys: they are more likely to elicit spur-of-the-moment reactions than well-thought-out considerations of all factors, especially when the subject is technical, new to, or not well understood by the respondent. Since responses are not binding, they neither require immediate action nor predict future action very well (which probably accounts for the fact that a clear link between attitudes and actual behavior has seldom been demonstrated). And even though responses are anonymous, many respondents are still apt to give what they perceive to be a "socially desirable," rather than a true answer.

A second reason is undoubtedly due to the Ericsson technique itself -- not an inexpensive, at-home, or one-step method. People who reported that they would use sex preselection were apt to have only the end result in mind. Once apprised of the cumbersome nature of this procedure, they would see a very different picture -- especially with its less-than 100% probabilities of success.

Third, I would argue that many people who might initially express a preference for a first-born son (or daughter) are not concerned enough about it to act on the preference, especially when a simple method for achieving what they want is unavailable. Even though a high proportion of people in survey after survey indicate a preference for a first-born son, there is no reason to assume that popularity of preference indicates strong preference. Also, rather than "rationalizing" about, or becoming "resigned" to, their same-sex children, many couples may truly have come to value their sons and daughters for the individuals they were. The fact that their initial sex preference did not materialize was no longer important. Further, most studies in the literature did show that most people preferred a sex mix in their completed families, although this point was often ignored or de-emphasized both in the original analysis and when reported on by others.

Fourth, this study demonstrates that sex preselection itself can be an emergent process. Quite a few people had gotten the first-born son they wanted but now were desperate for a daughter. Others had no real preference as to sex of first or early-borns, but discovered something was missing only after several same sex children had come along.

Last, I would point out that surveys or studies that excluded couples who already had children, or who were in a second or later marriage, might have missed those who were

most motivated to actually use a sex preselection method. Note that the most "desperate" people in this study were those who had four or more children (see Table 5.6).

B. DISCUSSION OF METHODS

There were clear advantages to using content analysis, especially in conjunction with a main-frame computer and the sophisticated programming and speed of calculations it provided. Once the tedious task of data entry was completed, it was then possible to quickly acquire data on frequencies and percentages, enabling a distinct picture of these letter-writers to unfold. It also enabled identification of, and easy access to, the important sub-groupings of family types analyzed in Chapter 5. By limiting the content analysis categories to those that were readily identifiable, objective, and easily coded, reliability was greatly enhanced -- particularly in contrast to coding the "latent" and more subjective content that would have been necessary if only this one method had been used.

The grounded theory method was used as it always is, to discover the basic social and social-psychological processes that couples were experiencing in their attempts to preselect the sex of their offspring. But, in conjunction with content analysis, there was a vastly improved picture now available of how many of these couples had which important characteristics that explained the variety of conditions and

consequences that eventually emerged. The high validity of the qualitative methodology was greatly enhanced by the high reliability of the quantitative method, with a resulting robust, three-dimensional picture of these couples and their efforts at sex preselection.

In addition to each method enhancing the other, each also allowed discovery of facts unavailable to the other. With grounded theory alone, I would not have become aware of the year-by-year changes in the percentages of couples seeking daughters (as shown in Table 4.4). I would also not have noticed the large percentage of husbands in the "no children yet" category who were actually older than fathers with 1-3 children (Table 5.5), or noticed that couples with only one child were far more likely to mention wanting only one more child than were those at other parities (Table 5.8). Neither would I have realized that couples with no children were much more likely than others to have one partner who had undergone sterilization (Table 5.11), nor, while I could tell that the number was small, would I have been able to document the exact percentage of couples seeking a first-born son (Table 5.10).

Likewise, with content analysis alone -- even if I had coded the more subjective statements -- I would not have discovered the processes and distinctions that explained much of the behavior of these couples: their social contexts, particular conditions and barriers around sex prese

lection, their interactional strategies and tactics, and their dilemmas and decision-making along the path from preference to action.

I also discovered [2] that the researcher is integral to the research enterprise, and that the research process itself will call forth and direct actions on the part of the researcher. Just as a novelist will sometimes discover that a character demands to tell his or her own story, so will the researcher who is paying close attention to the data discover that it forces new questions, breaks new paths, and goes off in ultimately fruitful, although quite unanticipated, directions.

Despite my initial concern that one method might "contaminate" the other, it proved easy to not only keep them separate, but to wander freely back and forth between them without becoming confused or losing track of where I was or what I was doing. And I was constantly going back and forth, because a discovery in one place would often inspire me to look in the other, and I was usually rewarded in so doing. For example, while coding the content analysis categories I would often come across a letter that touched on a social process I thought might become important -- difficulties in obtaining information, decision-making, etc. I immediately coded it into the appropriate content analysis categories, making sure to also code "Quote" in the "More" category (which indicated letters that were to be used in

the grounded theory coding) and placed it in a separate folder. I was also likely to start a memo notation on it as well -- if not a complete memo at that point or an addition to one already begun, then a sentence or two on a possible future memo.

As I was analyzing the various frequencies and other statistical output, I would often stop and look through both the memos and the letters themselves, since I had discovered that this was a very useful way of guiding the data analysis and also often prompted new memos. Being able to immediately see the frequencies of a particular comment, behavior, or event also guided the grounded theory analysis in more fruitful directions.

While the grounded theory analysis alone would still have generated most of the same categories that were shown in Chapter 6, the process that people followed along the path to (or away from) sex preselection would have been much more obscure, and the distinctions that emerged among the profile groups in Chapter 5 would have been entirely unavailable.

A disclaimer at this point is appropriate, however. These letters, while tantalizing and informative along some dimensions, were woefully incomplete as to information about the couples' religiosity, social class, education, and ethnicity, all of which are factors that would add depth to any predictions about the acceptance and use of sex preselect-

ection. Also missing was essential data about husband-wife interactions and negotiations around the decision-making process.

C. A FRAMEWORK FOR ANALYZING ELECTIVE MEDICAL INTERVENTIONS

When we remove any mention of sex preselection from the discussion in Chapter 7, we are left with a highly transportable theoretical framework with which to ask research questions and analyze other situations in which elective medical assistance is a primary consideration, notwithstanding that important questions remain about the decision-making process itself. Such situations might include other reproductive interventions (i.e., injectible contraceptives, sterilization reversals, infertility procedures, genetic manipulations, fetal therapy) as well as very different types of medical interventions (i.e., liposuction, cosmetic surgery, radial keratotomy [3], hair transplants, wrinkle eradication). These procedures either have to do with tailoring children to fit parents' desires for small, perfect families, or with people's concerns about their physical appearance. As with sex preselection, cultural, social, and biographical contexts must shape wants and desires for a variety of such elective procedures (most of which will be attainable only through the technical assistance of others). Different social and cultural contexts would, of course, create different demands.

Likewise, clinical research will itself be at least partly driven by the perceived demand for services. Sometimes the demand will precede the technique, and other times the availability of a technique will create new demands -- from people who had not previously experienced a need for the services or who had thought that such services were unattainable, or from people who want existing techniques modified in some way.

When these techniques are new, better, different, or otherwise interesting, information about them will be widely disseminated (in varying degrees of detail) through both the popular and the scientific electronic and print media. When the popular media is involved, simplification of technically complex material will occur for several reasons. Writers or interviewers are not usually scientists or specialists in the area of interest and must necessarily be constrained by what they themselves can understand and interpret. Further, most popular media is aimed at eighth to twelfth grade comprehension levels, thus placing limitations on vocabulary and analytic depth. And there are always mundane editorial limitations on breadth, depth, and length of stories. While this simplification will succeed in attracting and promoting popular interest, it must necessarily conceal many of the details a person must know about to adequately contemplate using one of these elective procedures.

In addition to attracting possible users of the technique, this media attention will both stimulate and provide a forum for debates about it. Questions will be raised about risks, efficacy, availability, and appropriate use of resources. Moral and ethical dimensions will be explored, as will questions of motive, profit, and exploitation. New variations of the clinical technique will be accompanied by claims and counterclaims and questions of legitimacy.

All of this provides a fruitful opportunity for social science researchers. In addition to examining the characteristics of potential and actual users of such techniques, analytic pursuits might also include a search for conflicting claims and controversies engendered by the technique itself and/or by those employing it; social, psychological and emotional considerations and reasons behind the demand for such services; and the moral and ethical dimensions that interested parties will inevitably raise about individual and/or widespread use of the technique.

Somewhere along the line prospective users will need to be apprised of the details, risks, probabilities for success or failure, and resources necessary for the procedure. They will then have to decide whether or not to attempt it. At this juncture a researcher would find it useful to attempt to discover the types and dimensions of interaction that the person has with significant others and with the provider, and could also focus on the discovery of the processes of

internal and external considerations and conditions that will ultimately affect options and choices.

Thus, I would argue that the process of deciding about any clinically assisted elective procedure is a matter of first making sure of the details and then confronting dilemmas around choices, much in the manner of those in this study who were contemplating whether or not to use sex preselection prior to conceiving their next child.

[1] The couples who were successful recipients of the Ericsson procedure were similar to the people in this study, in that they averaged two or more same-sex children before attempting the method (Ericsson, personal communication, 1988)

[2] More correctly, I understood for the first time something I already "knew."

[3] A comparatively new surgical technique to improve near-sightedness.

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APPENDIX A -- CONTENT ANALYSIS CODING

Evolution of the Coding Scheme

My original coding scheme, used for the first 100 letters and developed after I had made some hypotheses based on the literature but before I had really examined any of the letters methodically, was quickly modified and some parts were abandoned altogether. I originally coded for what a couple wanted as well as what they already had. I expected to find that some people with sons wanted at least one more and that most people wanted a first-born son. I had one category for couples who wanted a daughter, even though the Ericsson method at that time did not offer that choice. I did not anticipate needing a total of more than 5-6 categories. My intention was to code each letter with as many categories as fit, transfer that information to a summary sheet, then file the letter away and work only with the numerical data thereafter (at least for the quantitative analysis).

First, it became evident very early that nearly everyone wanted a child of the sex they did not yet have. In other words, the "have" variable was almost perfectly correlated

with the "want" variable; if you knew the value of one, you could predict the value of the other 99.9% of the time (exceptions were for parents who wanted an additional girl because of a genetic problem, and those at higher parities who wanted more "balance"). I therefore stopped coding for "want" and just kept track of how many girls or boys they already "had." The "want" category was used only when there was not enough information in a letter to tell whether or not the couple already had other children.

The next analytical problem was the category "have no children." Many couples were referring to "no" children in their present marriage, but mentioned a husband's (less often a wife's) children from a previous marriage. Also, some people in the "have no children" category said they wanted a first-born son (or daughter) and others wanted only one child in their completed family. Each of these seemed analytically distinct.

It was soon evident that I also needed a category for "fertility problems." Since the Ericsson process was also being offered as a solution to certain male infertility problems, many people wrote seeking help in simply achieving a pregnancy. Sex of offspring was infrequently mentioned by this group. Moreover, I soon noted that two types of infertility problems were mentioned: 1) people who had some form of unintentional infertility (such as men with low sperm counts or women with fallopian tube blockages); and 2) those

who had been sterilized deliberately (though sometimes unwillingly). Of this group, only males with low sperm counts were actually suited to the Ericsson method. There were letters from women who had undergone tubal ligations and hysterectomies, or whose husbands had been vasectomized (usually in a previous marriage), and from men who had undergone testicular surgery or who found themselves sterile from mumps. These letters offered very interesting data. They were long and detailed, often emotional, and usually full of misinformation about what the method could do for them and how their own anatomy really worked. I ultimately did a separate analysis (Chico 1983) of the letters from couples requesting services beyond those offered by Gametrics.

Another preliminary category was "abortion for wrong sex." Some early letters were in response to an article which also mentioned amniocentesis and abortion as a sex preselection method, though not as part of the Ericsson procedure. I wanted to keep track of these letters as at least one measure of the intensity of a couple's desire for a child of the "right" sex. As discussed in Chapter 4, some people indicated that they would indeed abort as a means of sex selection, though a majority indicated that they would not. This category had few people in it after coding the early letters, since responses to the initial article tapered off quickly and the amniocentesis-abortion option was not mentioned in subsequent media items. However, a few of

the most recent letters indicated that amniocentesis, sonograms, and chorionic villi sampling were beginning to be routine obstetrical practice, with more people becoming aware of the possibility of subsequent abortion for sex preselection purposes. So most letters in this category were received either at the very beginning or the very end of the study.

Another important analytic category was "genetic factors." I expected that many people with sex-linked genetic defects would be interested in sex preselection, but this remained a fairly small percentage of total letters received. In the past, many people with known genetic problems have chosen to not have any children and/or to adopt. With sex preselection, they now had the option to increase the odds of their having a non-afflicted child. Of the people who wrote to Gametrics, a few hemophiliac fathers wanted to sex preselect for sons (none of whom would be afflicted) in order to prevent the possibility of carrier daughters (50% of all daughters would be expected to carry the defective gene). Women who were themselves carriers of the trait, on the other hand, wanted to avoid having sons (half of whom could be expected to be hemophiliacs) and have only daughters (half of whom would also be carriers). Critics have raised the ethical issue of whether or not we should allow the gene pool to be further "dirtyed" by adding more people of carrier status. Their objections rest on the assumption that most people of known carrier status have so

far chosen to not have children at all, since their risks of having an afflicted child are unacceptably high. But with sex preselection, they can avoid having the afflicted son, and have all daughters. But of those daughters, half will be carriers.

Most people in the "genetic" category were women whose brothers, uncles or other male relatives had Duchenne muscular dystrophy and who wished to select for daughters in order to avoid this difficult and fatal disease. There were inquiries from people with a variety of other genetic problems, either definitely wanting to sex preselect or simply requesting information about the particular genetic disease.

With these early modifications, I soon had a fairly satisfactory classification scheme which then remained essentially unchanged. When a bundle of letters arrived, I first separated them into "clinic list only" or "other" piles. The "clinic list only" were those from people who either sent only a self-addressed, stamped envelope to Game-trics or who sent a short note or letter simply asking for the list of clinics. In the case of the former, I receive only the original envelope (which has the return address and/or the postmark, so that I could note the place of origin and the year the letter was sent). For the latter, I received both the envelope and the note, but only saved the note or letter, coding on it the state the letter originated from if that information was not already present in the

letter. These were then filed away separately, and not used for further analysis (though an early tally was kept of state or country of origin).

The "other" letters, those that had at least some content, were then consecutively numbered, the first number of the new batch continuing from the last number of the previous batch. I then read through each letter to determine which of the 16 permanent filing categories it most properly fit into. This consisted mainly of a "funneling" process, in that letters with little information stop at one of the broader categories, while those that had more information went into one of the more narrow categories. For instance, the letter most likely to be received said little more than something to the effect of, "We already have two girls, and of course you can see why we are interested in your method." This would be filed into category 1 -- "Have girls (specific number given), nothing else mentioned." If they had mentioned that they wanted "one last child, a boy" then it was filed into category 2 -- "Have girls (specific number given), want only one more child." If in addition they had also mentioned wanting to carry on the family name, or wanting amniocentesis also, or having genetic or fertility problems, it would have gone into yet a different category.

These were the filing categories used:

- (1) Have girls (specific number given), nothing else mentioned

- (2) Have girls (specific number given), want only one more child (a boy)
- (3) Have boys (specific number given), nothing else mentioned
- (4) Have boys (specific number given), want only one more child (a girl)
- (5) Amniocentesis/chorionic villi sampling and/or abortion mentioned
- (6) Want boy (no reason given) [not included in the analysis unless other content was present]
- (7) Want boy (reason other than mix)
- (8) Want girl (no reason given) [not included in the analysis unless other content was present]
- (9) Want girl (reason other than mix)
- (10) Genetic problem mentioned
- (11) Have NO children yet
 - (a) DO have children from previous marriages
 - (b) Don't, and want an ONLY child
 - (c) Don't, and want to select for FIRST-BORN
- (12) One or both partners has been sterilized [only those who were specifically inquiring about sex preselection were included in the analysis]
- (13) One or both partners is infertile [only those who were specifically inquiring about sex preselection were included in the analysis]
- (14) Have at least one child of each sex, want at least one more child through sex preselection
- (15) Have children, but number and/or sex not indicated
- (16) Other -- this includes inquiries from clinicians wanting to learn to do the procedure, students who wanted information for term papers, professionals who wished more information (librarians, genetic counselors, etc.) and any other letters that did not fit the above classifications. These were not used in the analysis.

The next step was to add each of the newly received letters to the cumulative count within each category. Each file folder contained ongoing summary sheets, which had a one-line entry for each letter (ID#, state/country of letter origin, date received, #/sex of present children, other pertinent information). When each batch of letters was received and coded, these summary sheets were updated, as was the overall one-page summary sheet. This enabled me to have an on-going tally available when media representatives telephoned with requests for information (and who nearly always mentioned an immediate deadline). At that point I also indicated, with an asterisk next to the ID number, those letters that were particularly interesting -- articulate, poignant, or that brought up things uncommon to the other letters -- so that I could refer back to them for quotes or further analysis. In order to preserve confidentiality, all letters are kept in a locked file cabinet in my office at home. No one but myself has had access to them, although on one or two occasions Dr. Ericsson has requested a particular letter back or has wanted someone's address.

TABLE A.1 -- AGE OF WIFE (UNRECODED FREQUENCIES)

| Age | Number | Percent |
|-----|--------|---------|
| 20 | 3 | .6 |
| 21 | 1 | .2 |
| 22 | 4 | .8 |
| 23 | 4 | .8 |
| 24 | 12 | 2.3 |
| 25 | 22 | 4.1 |
| 26 | 23 | 4.3 |
| 27 | 28 | 5.3 |
| 28 | 24 | 4.5 |
| 29 | 33 | 6.2 |
| 30 | 47 | 8.8 |
| 31 | 45 | 8.5 |
| 32 | 74 | 13.9 |
| 33 | 44 | 8.3 |
| 34 | 29 | 5.5 |
| 35 | 53 | 10.0 |
| 36 | 36 | 6.8 |
| 37 | 20 | 3.8 |
| 38 | 15 | 2.8 |
| 39 | 6 | 1.1 |
| 40 | 3 | .6 |
| 41 | 2 | .4 |
| 42 | 3 | .6 |
| 43 | 0 | .0 |
| 44 | 0 | .0 |
| 45 | 1 | .2 |
| | 532 | 100.0 |

MEAN = 31.5
 MEDIAN = 31.8

STANDARD DEVIATION = 4.1
 RANGE = 25

TABLE A.2 -- AGE OF HUSBAND (UNRECODED FREQUENCIES)

| Age | Number | Percent |
|-----|--------|---------|
| 22 | 1 | .4 |
| 23 | 2 | .8 |
| 24 | 3 | 1.3 |
| 25 | 10 | 4.2 |
| 26 | 6 | 2.5 |
| 27 | 7 | 2.9 |
| 28 | 5 | 2.1 |
| 29 | 7 | 2.9 |
| 30 | 15 | 6.3 |
| 31 | 13 | 5.4 |
| 32 | 21 | 8.8 |
| 33 | 18 | 7.5 |
| 34 | 14 | 5.9 |
| 35 | 24 | 10.0 |
| 36 | 16 | 6.7 |
| 37 | 13 | 5.4 |
| 38 | 13 | 5.4 |
| 39 | 9 | 3.8 |
| 40 | 10 | 4.2 |
| 41 | 7 | 2.9 |
| 42 | 8 | 3.3 |
| 43 | 5 | 2.1 |
| 44 | 1 | .4 |
| 45 | 4 | 1.7 |
| 46 | 1 | .4 |
| 47 | 0 | .0 |
| 48 | 1 | .4 |
| 49 | 2 | .8 |
| 50 | 1 | .4 |
| 51 | 0 | .0 |
| 52 | 0 | .0 |
| 53 | 0 | .0 |
| 54 | 0 | .0 |
| 55 | 1 | .4 |
| 56 | 0 | .0 |
| 57 | 0 | .0 |
| 58 | 1 | .4 |
| --- | --- | --- |
| | 239 | 100.0 |

MEAN = 34.4
 MEDIAN = 34.3

STANDARD DEVIATION = 5.8
 RANGE = 36

TABLE A.3 -- REASONS COUPLES WISH TO SEX PRESELECT
(UNRECODED)

| Category | Number | Percent |
|--|--------|---------|
| 1. No reason given in letter | 1486 | 59.3 |
| 2. Want opposite/at least one of each | 324 | 12.9 |
| 3. Family name/husband is an only son | 111 | 4.4 |
| 4. Have daughters from a previous marriage | 102 | 4.1 |
| 5. Want to limit total number of children | 102 | 4.1 |
| 6. Have a genetic problem | 81 | 3.2 |
| 7. Family history of daughters | 71 | 2.8 |
| 8. Have always wanted a son | 61 | 2.4 |
| 9. Family history of sons | 48 | 1.9 |
| 10. The husband wants a son | 44 | 1.8 |
| 11. Have sons from a previous marriage | 38 | 1.5 |
| 12. Had a son who died | 37 | 1.5 |
| 13. Have always wanted a daughter | 36 | 1.4 |
| 14. The wife wants a daughter | 36 | 1.4 |
| 15. Want a firstborn son | 36 | 1.4 |
| 16. Don't want child to have genetic problem | 35 | 1.4 |
| 17. Wife wants to "give" her husband a son | 22 | .9 |
| 18. A son preference based on ethnicity | 21 | .8 |
| 19. Have one son & want another | 20 | .8 |
| 20. Want an only son | 19 | .8 |
| 21. Had a daughter who died | 14 | .6 |
| 22. Need a son for the family business | 13 | .5 |
| 23. The wife wants a son | 12 | .5 |
| 24. Other family member wants son/daughter | 12 | .5 |
| 25. Have one daughter & want another | 11 | .4 |
| 26. Want an only daughter | 7 | .3 |
| 27. Want a firstborn daughter | 6 | .2 |
| 28. Child(ren) from previous marriage, sex(es) not stated | 4 | .2 |
| 29. Don't want child to be carrier | 3 | .1 |
| 30. The husband wants a daughter | 1 | .0 |

Reasons Couples Wish to Sex Preselect

1. "No reason given in letter." No reason was specifically mentioned for wanting to sex preselect, even though most of these letters did also mention that the couple already had two or more same-sexed children.
2. "Want opposite/at least one each." Those who mention having one or more children of a particular sex and then say something like "of course you can see why we are interested in your method." This category also includes those who specifically state they want at least one child of each sex.
3. "Family name/husband is an only son." These people want at least one son to carry on the family name and either say so directly, or mention that the husband is an only son.
4. "Have daughters from a previous marriage." Most in this category are couples where the husband has had daughters in a previous marriage, the present wife has had no children, and they are attempting to have the opposite of what the husband had before. The wife seems happy to go along with the idea, though many say they themselves don't really care what they have.
5. "Want to limit total number of children/have had the number they intended." While many other letter writers might be assumed to also desire this, particularly those at

higher parities, letters were coded into this category only if this was specifically stated.

6. "Have a sex-linked genetic problem." While most people mentioned specific sex-linked genetic diseases, particularly Duchenne muscular dystrophy and hemophilia, some letters coded into this category do not really reflect good understanding of heritable problems. This category reflects the letter-writer's own definition of such a problem, though may not reflect medical reality.

7. "Family history of producing only/mainly daughters." Most people in this category seem to imply that the odds are against them, and are reluctant to try again on their own. A few people, on the other hand, saw this as a favorable family history (i.e., "everyone else in the family has lots of daughters, so why can't we...").

8. "Have always wanted/needed a son; wanted one for a long time." As a primary reason, this may or may not be different from "None given" or "Want opposite" but I coded it separately since it came up regularly. For most, it was a "since I was a child myself, I have always wanted..." kind of comment. This is one of the few indicators of a long-held preference, though much of the literature tacitly assumes that most people do have such deep-seated preferences about the sex of their offspring.

9. "Family history of producing only/mainly sons." Similar to category seven.

10. "The husband wants a son." This and similar categories (see 14, 23, and 30) seem important in the analysis of husband-wife agreement or differences, but also includes couples where both partners want a child of a particular sex but one is much more emphatic about it than the other.

11. "Have sons from a previous marriage." Similar to category 4, except that they are now seeking a daughter for much the same reasons.

12. "Had a son who died." Some want the same sex as a sort of "replacement," others want the opposite and say they are not trying to replace the one who died. A small, but interesting, group (see also category 21).

13. "Have always wanted/needed a daughter; wanted one for a long time." Similar to category 8.

14. "The wife wants a daughter." See category 10.

15. "Want a firstborn son." A key coding category according to the literature on sex preselection. Note that only 1.4% of these respondents fall into this category.

16. "Don't want child to have a genetic problem." Here, the mother is a carrier of a sex linked genetic disease and they don't want to take the chance that their sons would be afflicted. Thus, they want to sex preselect for daughters

(and rarely address the fact that some of the daughters would themselves also be carriers).

17. "Wife wants to 'give' her husband a son." This emerged early, and often enough to earn a separate coding category. Most of these are from second (or third) wives, the original one(s) having produced all daughters. No categories emerged for "husband wants to give wife a daughter/son" or "wife wants to give husband a daughter."

18. "A son preference based on ethnicity." People in this category must have specifically stated that their desire for a son was primarily based on a particular ethnic/cultural mandate.

19. "Have a son (or sons), but want another." Either they have lost a previous son, or they have an imbalance (one boy, many girls).

20. "Want an only son." The epitome of family planning.

21. "Had a daughter who died." Similar to category 12.

22. "Need a son for the family business." Most of the businesses mentioned here had to do with farming. Some of these were also coded into category 3 when appropriate.

23. "The wife wants a son." See category 10.

24. "Other family member wants a son/daughter." This may be in addition to other reasons, but was sometimes the only

reason given. This seems to include people who themselves do not care that much about sex preselection, though would welcome another child. Some of these people want to please an elderly or dying parent or in-law, some want to provide their other children a sibling of the opposite sex. Some want to be the ones to provide a child to a extended family that has a history of all one sex.

25. "Have a daughter (or daughters), but want another." See category 19.

26. "Want an only daughter." See category 20.

27. "Want a firstborn daughter." Not predicted by any except the feminist literature, but did emerge from a very few of the letters.

28. "Children from a previous marriage, sex(es) not stated." A small category, but I wanted to keep these separate from cases where sex of the children was given in order to run appropriate bivariate tables.

29. "Don't want child to be a carrier of a genetic disease." This is specifically stated (see category 16 in contrast), generally by couples where the husband is already afflicted (usually with hemophilia). Since none of their sons will inherit the disease and all the daughters would be carriers, they want to sex preselect for sons only.

TABLE A.4 -- CONSIDERATIONS AFFECTING DECISION
TO SEX PRESELECT (UNRECODED)

| Category | N= | % |
|---|------|------|
| 1. Nothing mentioned | 1486 | 59.3 |
| 2. Only want one more child | 356 | 14.2 |
| 3. One more, ONLY IF 100% chance | 139 | 5.5 |
| 4. Don't want more same sex | 124 | 5.0 |
| 5. Mother's age | 117 | 4.7 |
| 6. Can afford only one more | 48 | 1.9 |
| 7. Wife has been sterilized | 47 | 1.9 |
| 8. Safety of child, mother | 46 | 1.8 |
| 9. Wife has had previous C-section(s) | 45 | 1.8 |
| 10. Wife a possible carrier | 42 | 1.7 |
| 11. Previous pregnancies difficult | 35 | 1.4 |
| 12. Expense of method | 29 | 1.2 |
| 13. Need donor sperm (AID) | 28 | 1.1 |
| 14. Wife infertile/low fertility | 25 | 1.0 |
| 15. Time, distance to clinic | 23 | .9 |
| 16. Husband has been sterilized | 23 | .9 |
| 17. Husband infertile/low fertility | 17 | .7 |
| 18. Want, or have had, amniocentesis | 17 | .7 |
| 19. Wife is now pregnant | 16 | .6 |
| 20. Either husband or wife is infertile | 15 | .6 |
| 21. Was sterilized, will have reversal | 11 | .4 |
| 22. Husband has low sperm count | 7 | .3 |
| 23. Husband has genetic disease | 6 | .2 |
| 24. Need donor egg or surrogate mother | 5 | .2 |
| 25. Need in vitro fertilization (IVF) | 5 | .2 |
| 26. Both partners are infertile | 2 | .1 |
| 27. H/W has had sterilization reversal | 2 | .1 |
| 28. Husband is a possible carrier | 1 | .0 |
| 29. Sterilized, doesn't want reversal | 1 | .0 |

Considerations Affecting the Decision to Sex Preselect

1. "Nothing mentioned." No consideration about sex preselection was given.
2. "Only want one more child; will try one more time."
Similar to categories 3, and 6, but the expression "one more time" did come up a lot, with more a tone of resignation than desperation.
3. "Considering another child only if 100% chance; can have only one more child." For the latter case, this is usually mentioned along with having had 2 previous C-sections, or needing some sort of surgery on the reproductive organs, or having a medical problem. The former indicates people who are less likely than most to actually go forward, mainly because the method is NOT 100% sure. This should have been two separate categories.
4. "Don't want more of the same sex." These are the more desperate (see Remark 4), since the method is at best 85% successful. Clinics will not accept people who are not willing to welcome a child of either sex. From the clinic's point of view, there are no "failures" if you do get pregnant and have the child. Success means having a baby, not a boy or a girl.
5. "Mother's age; biological clock." This was a primary concern for many women (father's age was mentioned perhaps once). This was coded only when the letter brought it up as

an issue; many women who gave their ages as 35+ did not mention this as a factor, so were not coded into this category. And most who did mention it did not give their exact age.

6. "Can afford only one more child." Distinct from category 2, where only the cost of the method itself was mentioned.

7. "Wife has had a tubal ligation or has otherwise been sterilized." Some see this as a definite barrier, but others assume that "artificial insemination" will be a remedy. See Remark 11.

8. "Safety of child, mother." This was mentioned in terms of risk to the fetus, and/or risk to the mother-to-be from the sex preselection procedure itself. Some people just said "of course, safety is a primary concern."

9. "Wife has had previous C-section(s)." This was coded only when mentioned as a limiting factor (either "once a C-section, always a C-section," or when they assumed that three was the limit that they could have). At least two women, however, had 4 or 5 each and were simply mentioning it in passing.

10. "Wife is/possibly is a genetic disease carrier." These people usually want daughters, not sons. Most mention experience with an afflicted brother, father, or other male relative (usually with muscular dystrophy, sometimes with hemophilia) and do not themselves want to go through the agony involved.

11. "Previous pregnancies difficult; history of miscarriages." This was mentioned as a limiting factor to the number of future pregnancies intended, and/or seemed to be given as a measure of the deservingness, or having earned the right, to sex preselect.
12. "Expense of method." The cost of the procedure itself, or the costs associated with traveling to the clinic several times. Sometimes people just say "money will be a major factor in our decision." If they state that money is not a consideration, see Remark 8. Also see category 6. My sense is that when people were mentioning cost as a factor, they were not thinking in terms of the post partum costs of raising a child, but only of the cost of using this method.
13. "Need donor sperm (AID)." These couples have a known male infertility problem, realize the need for donor sperm, but also want to sex preselect.
14. "Wife is infertile or has low fertility."
15. "Time, distance to clinic." Getting vacation time (or taking an unpaid leave) for self, and/or spouse and perhaps travelling to a distant clinic several times were the kinds of considerations mentioned here.
16. "Husband has been sterilized." Some letters mention this as a definite problem and are aware that a reversal or donor insemination will be needed; others are inquiring as to how sperm can somehow be "withdrawn" from the husband and

used in artificial insemination (along with sex preselection). Most of these men chose a vasectomy in a previous marriage after having had 2+ same sexed children, were now remarried, and wanted one more child--of the opposite sex.

17. "Husband is infertile or of low fertility." Only people who were also trying for sex preselection were coded here. It will be recalled that a version of the Ericsson method is used for male infertility, and though many people wrote in specifically asking about this, most were not concerned with the sex of a child, but only that they be able to have one--regardless of sex.

18. "Want, or will have, or have had amniocentesis." Most are in the older age categories and are worried about Down's Syndrome, but a few also want to know the sex as well, though most say they would not abort the "wrong" sex.

19. "Wife is now pregnant." Most of these were early along in their family planning and were looking for information in case the baby was not the sex they wanted. The next pregnancy would be a sex preselected one. One or two women were having amniocentesis, and at least one said she would abort the "wrong" sex (these would also have been coded into category 18).

20. "Either husband or wife is infertile." The letter writer does not indicate who (see categories 14 and 17).

21. "Was sterilized, will have reversal." A small group, but one which indicates great determination to get what they want (both men and women were in this category). There was not much awareness expressed here of the possibility that a reversal might not be successful.

22. "Husband has a low sperm count." If this was specifically mentioned as the husband's infertility problem, I coded it here. Otherwise, it was coded with category 17. Recall that the Ericsson method is particularly useful for these men, since the filtration process eliminates the non-motile material in the semen, and concentrates the fast moving sperm, considerably fewer of which can then be used in insemination.

23. "Husband has a genetic disease." Usually hemophilia. Their sons will not be afflicted, but all daughters will be carriers, so they all want to son-select. Interesting when compared with Reason 29.

24. "Need donor egg or surrogate mother." These women are aware of physiological deficiencies and how to work around them; some have lost their ovaries, others have had hysterectomies. Many women in category 14 might fit here, but if they did not explicitly say so, they were not so coded.

25. "Need in vitro fertilization (IVF)." Similar to the above, these are mostly women who have had tubal ligations or have had other damage to the fallopian tubes.

26. "Both spouses are infertile (or seem to have low fertility)." Again, only those who also wanted to sex preselect were included; most of these people just wanted a child.

27. "Husband or wife has already had a sterilization reversal." These were also coded into categories 7 or 16. These people at least understand the physiology involved; also, are very determined to get what they want.

28. "Husband is/possibly is a carrier." Emerged early in the coding, but I'm not sure of the exact genetic transmission here.

29. "Sterilized, but doesn't want a reversal." Understand the need, but doesn't want to go through the procedure; wants AID.

TABLE A.5 -- REMARKS (UNRECORDED)

| Category | N= | % |
|---|------|------|
| 1. No remark made in letter | 1136 | 45.3 |
| 2. Want son/daughter "very much" | 659 | 26.3 |
| 3. Want to "increase the odds" | 162 | 6.5 |
| 4. Are "desperate" | 135 | 5.4 |
| 5. Want to "complete our family" | 93 | 3.7 |
| 6. Unsuccessfully tried another method | 84 | 3.4 |
| 7. Know there's no "guarantee", more same OK | 82 | 3.3 |
| 8. Will "go anywhere" | 60 | 2.4 |
| 9. Will "try anything" | 49 | 2.0 |
| 10. Own MD NOT helpful | 42 | 1.7 |
| 11. Was sterilized, so THEREFORE want AI | 37 | 1.5 |
| 12. Won't "trust fate" again | 25 | 1.0 |
| 13. Genetic problem: muscular dystrophy | 24 | 1.0 |
| 14. Genetic problem: other | 24 | 1.0 |
| 15. Own MD WAS helpful | 21 | .8 |
| 16. Husband/wife DIFFER on preselection | 20 | .8 |
| 17. DON'T want Ericsson method | 18 | .7 |
| 18. Genetic problem: hemophilia | 15 | .6 |
| 19. WOULD or DID abort "wrong" sex | 14 | .6 |
| 20. WOULD NOT abort "wrong" sex | 13 | .5 |
| 21. Wouldn't trade present children | 13 | .5 |
| 22. Want to preselect for twins | 12 | .5 |
| 23. Have done, now doing, this method | 10 | .4 |
| 24. Genetic problem: retinitis pigmentosa | 9 | .4 |
| 25. Use "waste" filtrate to select for girls | 6 | .2 |
| 26. Single woman wants AID + sex preselection | 3 | .1 |
| 27. MIGHT abort for "wrong" sex | 3 | .1 |

Additional Remarks

1. "No remarks were made in the letter."
2. "Want son/dtr very much; would love to have; very interested." These people are not desperate, but seem to have more than just a passing interest in sex preselection. This and "desperation" are the only real measures of intensity I was able to code for.
3. "Want to 'increase' (or tilt or better) the odds." While this is similar to category 7, it seemed different enough to code separately.
4. "Are desperate; want son/daughter more than anything; obsession." They have to state this in their own words; I did not code this one just by inference, though in some cases it would not have been difficult to do so.
5. "We want to 'complete' our family." This was a fairly common expression, and an interesting one theoretically. This also shows up as people saying they are trying to find their "missing" or "elusive" son or daughter.
6. "The couple has unsuccessfully tried another sex preselection method." These will mostly be the Shettles or the Whelan methods (if this was not stated specifically, some form of temperature and timing process was usually mentioned). There was an occasional mention of the "diet" method.

7. "Know there is no guarantee; more of the same OK." These are the best clinic candidates--ones who want another child, even if it is the "wrong" sex.

8. "Will 'go anywhere'; travel to wherever Ericsson is; money is no object." Similar to the following; people were coded into both categories if they made both statements. Those willing to travel sometimes want Ericsson to do the method himself.

9. "Will 'try anything' to sex preselect; are willing to be in an experimental group if there is one." While these people do not necessarily use the word "desperate," they often give that impression. One woman said she would be willing to sign an agreement not to sue if anything went wrong at any stage of the process.

10. "Own M.D. was not helpful." This was coded when people mentioned that their own doctor was negative about the very idea of sex preselection, or said that there simply was no method that even improved the odds.

11. "Husband or wife has been sterilized, so therefore they want artificial insemination (AI)." These people are not clear on the concept, and seem to think that "artificial insemination" is a process that can bypass, or overcome, vasectomies or tubal ligations. If people mentioned that they wanted sex preselection in addition to AID and/or

sterilization reversal, they were not coded into this category.

12. "Won't 'trust fate' again; say they don't like 50-50 odds."

13. "Genetic problem: family history of muscular dystrophy." Usually the wife's brother or uncle has been afflicted; these people all want to sex preselect for daughters.

14. "Genetic problem: other" (see categories 11, 18, and 24). This category includes sex-linked diseases other than muscular dystrophy, hemophilia, or retinitis pigmentosa (or what the couple believes to be a sex-linked genetic problem). When something was specifically mentioned, it was usually a rare enzyme deficiency. Sometimes people mentioned a heart problem here, or mental retardation, or an unsightly birthmark. While some of these are probably not heritable, they were coded this way if the letter writer seemed to believe that they were.

15. "Own M.D. was helpful." These physicians gave their patient the Gametrics address, or wrote in behalf of their patient, or want to learn how to do the method themselves, and/or are willing to do whatever is necessary to help the patient if they go through the sex preselection process. A letter was coded into this category even if the M.D. suggested a method (usually Shettles) that has not been shown to be effective.

16. "Husband and wife differ on wanting sex preselection." This is a critical issue, since the whole area on negotiation around sex preselection (or most other fertility decisions) has not been studied. The use of the Ericsson method requires a great deal of cooperation and active participation from both partners.

17. "Don't want the Ericsson method; want a do-it-at-home method that really works." These letter writers either state that they do not want this particular method (though they don't say specifically why) or that they don't think they would be able to afford it.

18. "Genetic problem: hemophilia." Usually a brother is mentioned, though often a father or husband. These people want a daughter if the wife is a carrier, but want a son if husband is afflicted.

19. "Would or did abort the 'wrong' sex." This category emerged early in the coding process from letters responding to an article about abortion and sex preselection, but also showed up again in very recent letters. While the numbers here are small, they are of great analytic interest.

20. "Would not (or did not) abort the 'wrong' sex." See categories 19 and 27.

21. "Wouldn't trade present children for anything." An interesting remark, often heard in everyday conversation.

Of course, you can't trade your children, but what an interesting solution.

22. "Want to preselect for twins." One-stop shopping.

These people usually say they want one of each, but a few wanted two boys. These letters seem to be from women who only want to go through only one pregnancy (though no one mentions the higher risks and uncomfortable nature of a multiple pregnancy).

23. "Have done, or are now in the process of doing, this method." A small number, but of theoretical importance to show the link between intention and action. At least one couple had one son by this method, and now wants another.

24. "Genetic problem: retinitis pigmentosa." It would be useful to know more about the inheritance pattern here, because people seem to want both boys and girls.

25. "Why not use 'waste' filtrate to select for girls?"

These letters are from women who were writing when daughter selection was not available. Many of the media articles or presentations either don't mention, or gloss over, the explanation to this, which does seem a legitimate question. Some writers realize that they are pointing out the obvious, though others think they are helping further the research. The problem with the left-behind filtrate is that in addition to female bearing sperm, it also contains a high proportion of dead and deformed sperm and other semen products.

26. "Letter writer is a single woman wants AID plus sex preselection. A very small, but interesting, category.

27. "Might abort 'wrong' sex, but are not sure at this point. See categories 19 and 20.

APPENDIX B -- THE ERICSSON METHOD

The following description of the Ericsson sex preselection procedure was derived from a variety of sources, with my own sociological annotation woven in. In addition to explaining how the method works, I also point out how differing circumstances at some of the more critical steps could alter the outcome.

First, an example of a simplified explanation:

Doctors take sperm from the father's semen and place it in a glass column full of human albumin, a sticky substance. Because sperm carrying the Y chromosomes are hardier and swim faster, they collect in the bottom of the column. Then that mixture is placed in another glass column, allowing the bigger, stronger, faster Y's to once again collect in the bottom of the concentrated solution. The survivors are inserted into the woman's uterus (Gould Medical Group brochure, 1985).

This was not only simplified, it is somewhat inaccurate, as we shall see.

Here is what was most likely to happen from the time the couple originally made contact with the center and decided to attempt the method:

1. The couple was first counseled about the process and assessed for suitability before the female patient had a

medical history taken and underwent a physical and gynecological examination (Academy Medical Arts brochure 1985). Semen analysis would then be done to assess semen quality and to look for evidence of asymptomatic infection which should be treated prior to insemination (Univ of Minn 1986:1).

None of the sperm center brochures that I have seen indicated what the counselling process consisted of, but was undoubtedly an attempt to make sure the couple understood that the procedure had no guarantees, either of a conception or of conceiving the right sex. One center informed couples that they would not provide this service for people who had no children yet, or who desired only children of one sex (unless the couple had a known X-linked disorder (Univ of Minn, 1986:3). It was also at this early step that infertility problems (whether previously known, or discovered at the physical exams or during the semen analysis) or prior sterilization would be discussed.

2. The woman's ovulation cycles would be studied through menstrual history, basal temperature charts, examinations, and hormone tests. When the expected day of ovulation was established, an office visit would be set up during which the semen sample was obtained, and the sperm isolation and insemination procedures were performed (Women's Health Center brochure 1986).

Basal body temperatures were generally recorded for at least two cycles and the couple must either have abstained from intercourse or have used a barrier method during this time. If these birth control measures failed, an unassisted pregnancy could result. If the woman had irregular cycles, or could not detect temperature changes, or was unable to detect the midcycle luteinizing hormone surge by monitoring her urine at home, she might have turned out to be an unsuitable candidate for this method. Women with irregular cycles who were regulated with a fertility drug in the early years of male selection were found to have unexpectedly high percentages of female children; the drug was then used, in combination with the filtration technique, to deliberately select for females. But neither the women who unwittingly participated in this early female selection technique nor their doctors had expected this. There may be yet other clinical surprises in store for participants.

3. At the expected time of the wife's ovulation, the husband's semen was obtained (through masturbation and ejaculation into a clean, dry container), and a semen analysis was performed within one hour (Quinlivan et al. 1982). A complete semen analysis would include volume, count, motility, morphology, viability and white blood cell count (Univ of Minn 1986).

If there were no, or low, percentages of motile sperm in the sample obtained from the husband, or if there were other

indications of subfertility, insemination would not be recommended (although a variation of the sperm filtration method might be used to concentrate numbers of motile sperm). At least one of the letters reported on in Chapter 6 mentioned that the husband was "unable" to obtain a semen sample.

4. The semen would then be diluted with Tyrode's solution, and the sperm separated from the seminal plasma through centrifugation and then layered over human serum albumin gradients (Glass and Ericsson 1978). The number of gradients used would have been dependent upon sperm count. After appropriate migration time the final fractions would be pooled and washed. The final volume of sperm would then be artificially inseminated near the cervix or into the uterus. A sample of the sperm would be stained with quina-craine mustard for Y-body counting. The selection procedure would require about four hours (Univ of Minn 1986).

While the average concentration of Y-sperm is 75-80%, some men will show only a 60% Y population, and others may show as high as 90% concentration. Obviously, the chances of conceiving a male should be significantly different for each.

The Ericsson method is based on the principle that Y-sperm will "outswim" X-sperm under the handicap of swimming in a viscous medium. Washed sperm are layered over human serum albumin in a vertical column, allowing the progres-

sively motile sperm to swim into the albumin and then downward (due to gravity) through several discontinuous gradients (Ericsson 1978). It is believed that the Y-sperm are slightly smaller (not larger, as the brochure quoted at the beginning of this Appendix states) than the X-sperm, and they will therefore move slightly ahead in the race towards the bottom of the column (and/or they may have a greater angular velocity [Univ of Minn 1986]).

The final fraction consists of highly motile sperm, although much reduced in number. The left-behind fractions, while containing a high percentage of X-sperm, cannot be used for female selection because they also contain filtered-out white cells, non-motile sperm, agglutinated sperm, immature and morphologically abnormal sperm, and other seminal debris unsuitable for insemination.

APPENDIX C -- GLOSSARY

AMNIOCENTESIS: A procedure whereby amniotic fluid containing fetal cells is removed from the uterus of the pregnant mother (after the first trimester, when sufficient fluid is present and the fetus is in less danger from the procedure than it would be earlier) by means of a long, hollow needle. These cells are then cultured and analyzed microscopically to determine the fetal sex from the chromosome structure. This latter part of the procedure takes several weeks.

BIRTH-ORDER EFFECTS: While it is commonly believed that one's position relative to siblings has differential effects and that first-borns nearly always have an advantage over later-borns, a recent review of the birth-order literature has called most of the previous findings into question, since important variables such as family size, socioeconomic status, ethnicity, religion, etc., were not taken into account.

CHORIONIC VILLI SAMPLING: Begins with a biopsy (which can be done in the early weeks of pregnancy) of a small sample of the outermost portion of the placenta, which is then treated with chromosome-specific DNA probes for fetal sex determination. The entire procedure takes only a few days.

COMMODIFICATION OF CHILDREN: The tendency to regard children in the same light as other consumer durables -- they should be selected for various desired attributes such as gender, be free of manufacturing defects, have a long shelf life, etc.

ERICSSON METHOD OF SEX PRESELECTION: A set of patented procedures to separate sperm into fractions with higher proportions of Y-bearing sperm, which are then artificially inseminated into the mother-to-be at the time of ovulation. A variation of the method, in combination with a fertility drug, is used for female selection.

GAMETE: An ovum or sperm, containing 23 chromosomes. A sperm which contains an X chromosome is a "gynosperm," and one which contains a Y chromosome is an "androsperm." All ova contain only X chromosomes.

I-SCALE PREFERENCE MEASURE: A technique which entails a series of paired comparisons over a range of choices from zero to six children to determine a person's underlying number and sex preference.

NATURAL FAMILY PLANNING (NFP): A method of determining the time of ovulation in order to either increase or decrease the chance of conception.

PARITY: Refers to the number of completed pregnancies a woman has. A woman at zero parity (also referred to as a nullipara) has had no children yet; at parity one, has had one child, etc.

RATIONAL ACTION THEORY: The belief that most people, when facing an important decision (such as whether or not to have a child), will rely on a rational cost-benefit analysis, which will then be carefully implemented.

RATIONALIZATION: According to Dewey (1929), an active, self-aware process of refining conduct so as to better understand and control the world about one. NOT "reduction in cognitive dissonance" as favored by Pohlman (1967a, 1967b).

SEX-LINKED GENETIC DISEASE: Refers to a defective gene or genes on an X or Y chromosome. In an X-linked disease in which the mother is a carrier, she can pass the defective gene to both sons and daughters, with about half of her sons expected to become afflicted, and about half of her daughters becoming carriers. In an X-linked disease in which the father is afflicted, he cannot pass the trait to his sons, but all his daughters will be carriers.

SEX PRESELECTION: (Also called gender preselection, sex selection, gender selection): an attempt to increase the probability of either a male or female fetus prior to conception.

SEX RATIO: The number of males per 100 females. A sex ratio is high if it is over 100, low if below 100. The sex ratio that occurs at conception is called the primary sex ratio. While this actual ratio is unknown, it is believed to be fairly high, with estimates from 120 to 180 males conceived for every 100 females. The sex ratio that occurs at birth is called the secondary sex ratio. In the United States, the secondary sex ratio is about 105 for the population as a whole, though may be higher or lower for certain subgroups; this translates to a 51.4% probability of a boy, and a 48.6% probability of a girl at any birth.

SHETTLES METHOD OF SEX PRESELECTION: A method that uses timing of ovulation, pH of the vagina, and position at intercourse to influence the sex of offspring.

WHELAN/GUERRERO METHOD OF SEX PRESELECTION: A method that uses timing of ovulation to influence the sex of offspring.

Y-BODY FLUORESCENCE MICROSCOPY: Utilizes the discovery that human sperm, when stained with a certain dye, will fluoresce if they contain a Y-chromosome. Although this finding is somewhat controversial, the procedure has helped to speed up research on sex preselection methods that rely on sperm separation into X- or Y-concentrated fractions; such a staining procedure can quickly determine whether, and to what degree, separation has occurred (rather than waiting to find out the sex of actual offspring). Such stained sperm cannot be themselves used in sex preselection, since the staining process kills the sperm.

ZYGOTE: A fertilized egg, containing 46 chromosomes (two of which are the sex chromosomes; an XX combination is female, an XY combination is male).

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