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The psychological effects of selective termination in multifetal pregnancies

McKinney, Mary Kathryn, Ph.D.

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300 N. Zeeb Rd.
Ann Arbor, MI 48106

THE PSYCHOLOGICAL EFFECTS OF SELECTIVE TERMINATION IN MULTIFETAL PREGNANCIES

by

MARY KATHRYN MCKINNEY

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Date

Chairman of Examining Committee
Steven B. Tuber, Ph.D.

11/23/04
Date

Executive Officer
Kay Deaux, Ph.D.

Arietta Slade, Ph.D

Jennifer Downey, M.D.

Paul Wachtel, Ph.D.

Irving H. Paul, Ph.D.

Supervisory Committee

The City University of New York

Abstract

THE PSYCHOLOGICAL EFFECTS OF SELECTIVE TERMINATION IN MULTIFETAL PREGNANCIES

by

Mary Kathryn McKinney

Adviser: Steven Tuber, Ph.D.

Selective termination is a medical procedure performed on women who have conceived multifetal pregnancies, usually after infertility treatment, in which some of the fetuses are aborted while others are left to be carried to term. Although physical risks associated with carrying more than two fetuses may be reduced with first-trimester pregnancy reduction, this is the first controlled study to assess the psychological risks to the mother incurred by the medical intervention.

The rates of depression and psychiatric symptoms of 42 women who underwent selective termination (ST) were compared with those of 44 women who had also become pregnant after infertility evaluation and/or treatment but who conceived only a single fetus or twins, and thus did not need to undergo a pregnancy reduction. Of the ST patients, 34 were still pregnant or had given birth at the time of the interview, while 8 had aborted the entire pregnancy subsequent to the ST. In the control group, 34 were

pregnant or postpartum when interviewed, and 10 had spontaneously aborted the pregnancy.

Among ST patients and controls with a successful pregnancy outcome there were no significant differences in rates of depression or psychiatric symptom levels. For example, 14.7% of both ST patients and controls with successful pregnancies reported depressive episodes which met criteria for Major Depressive Disorder (MDD). While multifetal reduction did not appear to put women at significant risk for MDD, miscarriage of the entire pregnancy was highly associated with depression: 75% of the miscarrying ST patients and 60% of the miscarrying controls reported MDD.

When pregnancy outcome is successful, most women appear to cope well with ST and feel that they have made the best decision for themselves and their families. Only one successful ST patient regretted having undergone the procedure. On the other hand, most women experienced the multifetal pregnancy as a distressing life event, and reported anxiety, grief and guilt at the abortion of a wanted child. Detailed examples of subjective reactions to ST are provided, and the psychodynamic implications of the procedure are examined.

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This work is dedicated, with my deepest respect and appreciation, to the women who shared their stories and feelings about selective termination with the hope of helping other women in the future.

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Chapter I

Introduction and Aims of the Study

> "... the doctor said, "You may keep one of your children."
> "Bitte?" said Sophie.
> "You may keep one of your children," he repeated. "The other one will have to go. Which one will you keep?"
> "You mean I have to choose?"
> ".... Her thought processes dwindled, ceased. Then she felt her legs crumple. "I can't choose! I can't choose!" She began to scream. Oh, how she recalled her own screams! Tormented angels never screeched so loudly above hell's pandemonium."
>
> (Styron, 1976 p.589)

In William Styron's novel "Sophie's Choice" the heroine's tragic secret is that at the gates of Auschwitz she chose to let her daughter die in an attempt to save the life of her first-born son. Today, after successful infertility treatment, women who have conceived multiple fetuses are having to decide whether to let some of their unborn children die in order to increase the chances that others will live. Do women experience this decision as a tragic secret, or as a necessary and even welcomed opportunity to increase their chances of giving birth to healthy, longed-for children?

Selective termination is a gynecological intervention performed on women with multiple pregnancies in which some

of the fetuses are aborted while others are left to be carried to term. The procedure is indicated to increase the chances that healthy, full-term babies will be born, since the incidence of prenatal morbidity, premature birth, and infant mortality increases with each fetus. For example, the chance that at least one of a set of triplets will be stillborn, or die in early infancy, is over 30% (Botting, Davies & MacFarlane, 1987).

Pregnancy reductions are most often performed on women who have conceived multiple fetuses after infertility treatment. As reported in a front page article of the New York Times (Kolata, 1988) the demand for selective termination is growing because recently-developed infertility treatments have dramatically increased the likelihood of a multiple pregnancy. One drug which is widely used to induce ovulation, human menopausal gonadotropins (hMG; trade name, Pergonal), raises the chance of conceiving more than two fetuses from less than 0.02% to about 5% (Schenker, Yarkoni & Granat, 1981; Speroff, Glass & Kase; 1989). And it is estimated that in the U.S. each year, 20,000 women receive Pergonal to induce ovulation (Ob Gyn News, 1989).

Other infertility treatments, such as in vitro fertilization (IVF) and gamete intrafallopian transfer (GIFT) also increase the odds that a woman will conceive more than one child (Mordel, Ezra, Dorembus et al., 1992).

When providing these treatments physicians routinely implant at least four fetuses to increase the chance that the patient will become pregnant. The result is often multiple pregnancy: for instance, records from Australian and New Zealand IVF clinics indicated that 3.5% of all in vitro pregnancies were triplet and .1% were quadruplet (Lancet editorial, 1988).

Pregnancies resulting from successful fertility treatment are diagnosed early and carefully monitored by ultrasound, thus multifetal gestations tend to be discovered within a month of conception. As a result of the early detection, when a woman is carrying three or more fetuses, she may be offered the option of a selective termination to reduce her pregnancy to twins or even a single fetus.

Conducted in the first-trimester of the woman's pregnancy, the most common reduction is from three or more fetuses to twins (Evans & Fletcher, 1989). The terminations are conducted on an outpatient basis and anesthesia is not needed for the patient. Using an ultrasound image as a guide, the physician inserts a needle into the uterus, either transvaginally (eg.,Brandes, Itskovitz, Timor-Tritsch et al., 1987) or transabnominally (eg., Berkowitz, Lynch, Chitkara et al., 1988), and injects a solution of potassium chloride into the thorax of the targeted fetus. The heartbeat stops within minutes, and over a period of months the tissue of the dead fetus is reabsorbed into the womb.

Unlike "Sophie's Choice", however, the selection of survivors is not based on gender. The medical procedure takes place before external sexual development has begun and the physician decides which fetus to terminate based on its location within the uterus.

Physicians and ethicists have written that the decision to conduct a pregnancy reduction is ethically difficult since it consists of taking life. However, many consider the procedure justified if it improves the chances that the remaining fetuses will survive and be born healthy, and if it decreases the health risks for the pregnant woman, thus doing "less harm than good" (Evans, Fletcher, Zador et al, 1988; Zaner, Boehm & Hill, 1990). Because the survival rates of twins is almost as good as that of singletons, physicians have advocated reducing to no less than two fetuses (Berkowitz et al., 1988; Evans & Fletcher, 1989; Evans, May, Drugan et al., 1990).

In defense of selective termination as a "necessary" procedure, Hobbins (1988) points out that multiple pregnancy involves serious health risks for the mother such as preeclampsia, over-extension of the uterus, and postpartum hemorrhage. Also to be considered are social and economic factors, starting with the expense of extensive prenatal hospitalization for the pregnant woman, and postnatal hospitalization for premature infants (Berkowitz et al., 1988; Malmstrom, Faherty & Wagner, 1988). Finally, there is

evidence of psychological risks for both the parents and children of triplet and quadruplet sets (Bryan, 1991; Garel & Blondel, 1992; Goshen-Gottstein, 1980; Menzel & Rotnem, 1990; Robin, Bydlowski, Cahen & Josse, 1991).

While the abortion of some but not all fetuses in a pregnancy is becoming more widespread, little is yet known about the mental health status women who undergo the intervention. Multifetal reductions were first reported in the English language medical literature in 1986 (Dumez & Oury), and well over a thousand women have already undergone the procedure (Birnholz, Dmawski, Binor, & Radwanska, 1987; Evans et al., 1990; Lynch, Berkowitz, Chitkara et al., 1990; Shalev, Fenkel, Goldenberg et al., 1989; Tabsh, 1990).

If ethical justification of selective termination hinges on saving the lives of the remaining fetuses, rather than the eventual psychosocial impact of so many babies, then the decision to reduce is growing more questionable. In the past few years, perinatal care for multiples has improved to the point that justifying selective termination solely for medical reasons may no longer be possible, at least in the case of triplet pregnancies. For example, Gonen, Heyman, Asztalos et al. (1990) reported on the results of 24 triplet, 5 quadruplet, and 1 quintuplet pregnancies managed in their Toronto hospital. In this sample, more than 90% of the babies survived, and only 1% of the survivors will have major handicaps.

Even more relevant to the decision of whether or not to reduce triplets, two recent, controlled studies examined the outcome rates for multiple pregnancy managed with and without selective termination. Porreco, Burke & Hendrix (1991) found that gestational ages, birth weights, and infant hospital days for nonreduced triplets did not differ significantly from that of twins born after selective termination. Drawing similar conclusions from somewhat different results, Melgar, Rosenfeld, Rawlinson and Greenberg (1991) found that triplets were born an average of 1.7 weeks earlier than reduced twins, and stayed in the neonatal intensive care unit more than twice as long, but that survival rates and later health status among the two groups was similar. Both studies conclude that if medical outcome is the sole criteria, the benefits of multifetal reduction are not clear for triplet pregnancies.

As medical indications for selective termination become ambiguous, evaluation of the potential psychological risks and benefits becomes crucial. So far, only one published study has begun to address the patient's reaction to selective termination. In 1992, Vauthier-Brouzes and Lefebvre reported briefly on a seven-item questionnaire given to 22 multifetal reduction patients and their husbands after delivery of the babies. The patients saw the reduction "as a normal and necessary procedure, which generated anxiety in most cases" (p1014). Few couples were

fully informed about the procedure or its consequences before the diagnosis of the multiple pregnancy, and most said that they wanted to make the decision to terminate jointly with the physician. Although all pregnancies in this sample were reduced to twins, 20% of the couples said that they would have preferred to reduce to a single fetus if they had been permitted to do so by the physicians. No assessment was made of possible distress or depression associated with the procedure.

More extensive studies of the reactions to ST have been advocated in the literature. As Fletcher and Wertz (1987) state in an article about ethics in prenatal medicine, "careful follow-up studies of the parent's experience during and after selective termination of multiple pregnancies (are) indispensable for adequate ethical evaluation" (p.303). Such a follow-up is the purpose of this dissertation.

Two distinct questions about the emotional ramifications of this medical procedure were considered. The first question was whether the procedure increased the likelihood of developing mental health disorders either during pregnancy or postpartum. Did the procedure put women at risk for episodes of depression, clinically significant levels of anxiety, or other ongoing psychiatric symptoms? To answer this quantitative question, women who underwent selective termination were given standardized self-report

instruments to measure psychiatric symptomotology and clinical depression. The results were compared both to published norms and to the same measures given to a control group.

The second question was how women undergoing selective termination experienced the procedure. Clinical interviews consisting of both structured and open-ended questions were used to explore the range of reactions women had after their pregnancies were reduced. Whether or not pregnancy reduction poses a psychiatric risk, it was assumed to have an emotional impact. What are the fears and fantasies commonly experienced by these women? Do selective termination patients tend to feel regret, relief, or ambivalence about the procedure? How are their pregnancies similar to and different from those of other women in related circumstances; situations which include normal singleton pregnancy, carrying twins or triplets, pregnancy following infertility treatment, the elective abortion of an unwanted pregnancy, and miscarriage or stillbirth.

Chapter II

Literature Review

Chapter II: Part I - Pregnancy

A psychoanalytic view of normal pregnancy.

To understand the psychological effects of selective termination, it is first necessary to review the range of emotional responses and intrapsychic tasks faced during normal pregnancy. It is only in relationship to normal, singleton pregnancies that the deviations imposed by the multiple pregnancy and the subsequent reduction can be placed in perspective.

Freud viewed a woman's wish to bear a child as an unconscious substitution for the penis she lacked (Freud, 1933; 1940) but this view of pregnancy as reparation has been largely dismissed. Helena Deutsch (1945) was among the early psychoanalytic theorists to move away from the classic position of childbearing as a symbolic replacement of the missing phallus. She spoke of the "joys of motherhood" and saw pregnancy as a positive expression of a biological urge. As an active expression of libidinal drives, pregnancy was contrasted with other erotic arenas, in which Deutch saw women as primarily passive and masochistic.

The path taken by many early theorists, such as Therese Benedeck and Grete Bibring, was to keep Freud's emphasis on

neurobiology, while rejecting the idea of pregnancy as mere substitution. Benedek (1959; 1970) saw childbearing as an individual manifestation of survival instinct and was the first to call pregnancy a developmental phase. She pointed out that childbearing was a maturational step which revived infantile conflicts and fantasies that could be worked through during parenthood. Bibring and her colleagues studied hospital patients in a prenatal clinic and came to view pregnancy as a period of crisis, generated in part by hormonal and other somatic changes (Bibring, 1959; Bibring, Dwyer, Huntington, & Valenstein, 1961). The biologically triggered crisis of pregnancy results in a temporary regressive state, resembling acute emotional disturbance, according to Bibring, but often results in new developmental solutions and greater psychological maturity and integration. She likened pregnancy to other biologically generated developmental transitions, namely puberty and menopause.

Common to most psychoanalytic theories is the view of pregnancy as a phase during which repressed fantasies and conflicts are reawakened and earlier developmental tasks renegotiated (eg. Kestenberg, 1977; Notman, 1990). For example, using clinical data from patients in psychoanalysis, Dinora Pines (1972, 1982) has described pregnancy as a period of temporary regression which arouses primitive anxieties and conflicts around separation-

identification.

Psychoanalytic theorists usually divide pregnancy into three separate phases, which correspond roughly to the traditional demarcation into trimesters, and which bring different tasks and challenges (Kestenberg, 1977; Lester & Notman, 1986; Pines, 1972). The first "narcissistic phase" (Deutsch, 1945) covers the time from awareness of pregnancy to the fourth month. During this period, there is an increased libidinal investment in the self and a focusing on bodily changes.

The second phase begins with the quickening. As the mother feels the baby moving inside of her she must recognize it as a separate entity that she cannot control. Differentiation from the baby is a task which starts at this point, even as the woman continues to nurture the fetus as a part of her own body. This ability to identify with the fetus, while developing an attachment to it as a separate entity, requires the mother to have flexible internal boundaries between self and other, and a certain "fluidity" (Blos, 1980) in object relationships.

The third and final phase of pregnancy is viewed as the last few weeks when bodily discomfort increases and the woman prepares for labor. This is typically when anxiety peaks, as the woman worries about the discomfort and possible mortality of labor, fears that the baby may be born

damaged or abnormal, and grows concerned about the extreme disfigurement of her pregnant body.

Leon's multimodal approach.

As part of his clinical and empirical work on the psychological effects of perinatal loss, Irving Leon (1990; 1992b) has proposed organizing the psychological aspects of pregnancy into four distinct frameworks. He links this multimodal approach to Fred Pine's (1985; 1990) proposal that psychoanalytic theory can be understood as four separate psychologies: drive, ego, object and self. In Leon's model, pregnancy is considered from similar vantage points, although he combines drive and ego theory, and adds a different component -- a developmental perspective. Using this model, "pregnancy may be interpreted alternatively as a developmental milestone, a revival of earlier instinctually charged conflicts, the creation of a new object relationship, and an enhancement of the self" (Leon, 1992, p.1465).

Organizing various aspects of pregnancy in this way allows the theories of other psychoanalysts to be separated into distinct strands. Thus Leon's developmental model of pregnancy is founded upon Benedek (1959) and Bibring's (1959) view of pregnancy as a developmental phase and intrapsychic crisis, as well as Erikson's (1963) view of parenthood as a potential vehicle to express generativity.

The focus of this vantage point is the woman's experience of pregnancy as a transition in preparation for the developmental stage of motherhood (Shectman, 1980). It also encompasses the perspectives of social psychologists and family theorists for whom pregnancy heralds the beginning of a new social role and shifts in interpersonal relationships (Belsky, Lang & Rovine, 1985; Cox, 1985).

When pregnancy is viewed through the lens of a drive model, the biological and instinctual underpinnings of gestation are focused upon (eg. Deutsch, 1945). For example, the increased production of progesterone during the first trimester is associated with regression to an oral mode of functioning (Benedek, 1942). The drive perspective encompasses the psychoanalytic view of pregnancy as a time of intrapsychic regression in which latent oedipal conflicts are revived and renegotiated. For example, women may have the unconscious fantasy that the baby represents a victory over mother in the competition for father (Ballou, 1978 and Deutsch, 1945: as cited by Leon, 1990). Each woman's intrapsychic conflicts and defenses determine her unique reactions to and experience of pregnancy.

With an object relations model, there is a focus on the centrality of internalized human relationships, and mother-child attachment (eg. Bowlby, 1969). This perspective highlights the mother's growing awareness during pregnancy of the baby as a separate, distinct person, which is usually

established by the third trimester of pregnancy. Also incorporated into this theoretical realm, is the pregnant woman's internalized model of her own mother, which shapes her feelings about her growing baby, and her view of herself as a mother to be. The work of Notman and Lester (1988) is an example of how psychoanalysts have recently focused on how pregnancy revives memories and fantasies of being mothered, and how the adult mother-daughter relationship may be renegotiated during pregnancy.

What Leon calls the narcissism model is based on the self psychological perspective of Kohut (1971; 1977). Initially, the mother perceives the fetus as an extension of herself, and although this shifts during pregnancy and after birth to a view of the child as a separate individual, the mother's self image is still greatly influenced by how the child meets and fails to meet her expectations. As Leon writes:

> "Pregnancy fulfills crucial narcissistic ambitions by 1)fostering the achievement of omnipotence, both in the act of creation and in becoming a mother, who is imbued with such power in the mind of a young child, 2) affirming one's femininity through reproduction, and 3) serving as a vital narcissistic defense against death anxiety through a sense of immortality because of one's biological continuity in the next generation (Leon,1992b,p.1468)."

Leon's organization of pregnancy into four psychoanalytic vantage points will be the theoretical approach used in this study to examine women's reactions to selective termination. The diagnosis of multiple fetuses, and the subsequent

termination of some of those fetuses, is expected to interact in complex ways with the psychological tasks a woman must master during pregnancy. This complexity will be organized in terms of drive, object and narcissistic issues each woman faces during pregnancy.

Empirical support for psychoanalytic theories.

Empirical research supports, expands, and occasionally conflicts with psychoanalytic theories based primarily on clinical experience with therapy patients. A study by Wenner, Cohen, Weigert, et al. (1969) found that dependency needs increase in pregnant women. But they also found that these needs for greater attention, reassurance, and involvement from their husbands and family members were not necessarily coupled with overtly regressive phenomena.

Studies conducted by Shareshefsky & Yarrow (1973) and Leifer (1977; 1980) support the view that pregnancy is a time of emotional upheaval which may result in a new sense of maturity, fulfillment and adult identity. Both studies found that a woman's adaptation to pregnancy was clearly predictive of her functioning as a new mother and that the degree of personality integration achieved by early pregnancy was predictive of adjustment to parenthood and overall psychological growth.

Consistent with psychoanalytic views of pregnancy as a period of increased narcissism, studies have shown that

pregnant women become more self-preoccupied and less emotionally invested in their external worlds (Leifer, 1977; 1980). This turning inward is positively associated with becoming psychologically prepared for motherhood.
In interviews with women pregnant for the first time, Lumley (1980, 1982) found that during the first trimester women described a sense of unreality about the fetus and were more focused on the changes in their bodies and feelings. As their pregnancy progressed, the women were able to give increasingly realistic descriptions of what the fetus was like, and to view the fetus as a person.

Consistent with object relations theories, women's fantasies about their unborn baby shapes their later parenting style. A series of studies with both adult and adolescent women indicate that by the third trimester of pregnancy women have a stable and vivid mental representation of their infants which shapes their maternal behavior after the infant is born (Zeanah, Keener, Steward & Anders, 1985; Zeanah, Keener & Anders, 1986). Leifer (1977; 1980) found that women who had developed an intense emotional attachment to the fetus by the end of pregnancy felt much closer to the baby even at two months after giving birth.

Among Leifer's subjects, the events of pregnancy led to dramatic changes, predominantly negative, in customary mood tone. This was true even of women who reported relatively

stable and positive mood tones prior to pregnancy. This finding, consistent with the general view of pregnancy as a developmental crisis, lends credence to the methodological necessity of a pregnant control group when studying special pregnancies.

According to both Leifer (1980), and Sherefsky and Yarrow (1973), the most prevalent affective change during pregnancy is increased anxiety. During the first trimester, the anxiety of most women focused upon the fear of miscarriage and many women expressed a conscious desire not to become too invested in the pregnancy while the chance of loss was still high. After the quickening these fears decreased, to be replaced with a growing concern about the normalcy of the fetus. During the last trimester, self-concern became more salient, as women worried about the pain or death during childbirth, and expressed fearful fantasies that they might loose their husbands to another woman or accidental death (Leifer, 1980).

The effects of medical technology on pregnancy.

Over the past twenty years new medical technologies such as ultra-sound, amniocentesis, and other prenatal screening techniques have become a routine component of many pregnancies. As prenatal care and obstetric practices have changed, writers from several fields have speculated about how medical advances may have changed women's emotional

adjustment to pregnancy.

It has been proposed that becoming emotionally attached to the fetus, classically viewed as beginning after quickening, begins sooner when medical technology exposes women to the reality of the baby at an earlier phase of pregnancy. Lester and Notman (1988) point that the new obstetric practices allow the mother to hear the fetal heartbeat quite early and even to "see" the child on an ultrasound screen long before quickening. However, these psychiatrists do not feel that technological evidence that the fetus is separate and living has the same psychological effect as feeling the baby move (p.217).

Physicians have also noticed that current methods of prenatal management may change the experience of pregnancy. As Bowers (1985) writes, "(c)linical experience indicates that earlier diagnosis of pregnancy facilitates earlier identification with and attachment to the fetus" (p.55). A medical ethicist and an obstetrician, Fletcher and Evans (1983), report that parental viewing of the fetus before quickening may accelerate bonding. They write about women who after viewing their fetus on the ultrasound screen early in the first trimester "reported feelings and thoughts clearly indicating a bond of loyalty toward the fetus that we and others had associated only with a later stage of fetal development" (p392).

Other frequently used prenatal tests may also effect

psychological response to pregnancy. In her book "The Tentative Pregnancy," about women's reactions to amniocentesis, sociologist Barbara Katz Rothman (1986) warns that a woman's developing relationship with the fetus may be negatively impacted by the genetic screening process. She writes that women who choose to undergo amniocentesis try to inhibit feelings of attachment to the fetus until the results of the tests show no defects.

Amniocentesis usually takes place during the 16th week of pregnancy, and the results of the test are not available until a few weeks later -- a time period some women described as "suspended animation" and during which they warded off fantasies of motherhood. In her sample of 60 women who had undergone amniocentesis, Katz Rothman found that 13 were unable to remember when they had first felt their baby move, while all the women who had refused aminocentesis could recall the quickening. The author postulates that as women rely more on external, "objective" evidence to validate the existence of the fetus, they will be less internally attuned to their own physical experience of the baby within.

Knowledge of fetal gender changes the developing relationship. About 80 to 90 percent of women who undergo amniocentesis ask to be told the sex of the fetus (Powledge, 1983). This news immediately confers a more specific identity, and some women report feeling closer to the unborn child once they know that it is a girl or a boy. Katz

Rothman (1986) worries, however, about an attachment that is developed in the context of cultural stereotypes about gender, and how the parental relationship will shift when mothers and fathers "plan for" rather than "fantasize about" their unborn child.

There are practical medical differences in the monitoring of pregnancy after infertility treatment which are likely to affect the psychological experience of both multifetal reduction patients and control subjects in this study. First of all, pregnancy after ovulation induction or the assisted reproductive technologies (ART), is objectively confirmed very early in the pregnancy by tests of hormone levels. The news of pregnancy will often be discovered and confirmed by doctors before the woman has even "missed" her menstrual period. Second, the pregnancy is closely monitored by ultrasound and the number of viable fetuses will be established long before there are visible signs of pregnancy in the woman's body.

A woman who has undergone selective termination may be more ambivalent about bonding with the remaining live fetuses than other pregnant women. On one hand, she has been exposed to the reality of her fetuses -- she has seen them move and their hearts beat -- more often and earlier than women whose pregnancies are less closely monitored. On the other hand, she may consciously resist the process of attachment after the reduction; because of increased fears

that she will loose the entire pregnancy, a wish to avoid memories of the terminated fetus(es), and a need to suppress any feelings of sadness or guilt about the termination.

Pregnancy and psychiatric disorder.

Although normal pregnancy has been viewed as a developmental crisis and a period of psychological disequilibrium, this time of inner conflict and role transition does not generally lead to impaired mental health. Empirical evidence indicates that pregnancy itself is not a risk factor for psychiatric disorder (Downey & Whitaker, 1992). Psychotic disorders are no more prevalent in pregnant women than among other women of childbearing age (McNeil, Kaig & Malmquist-Larsson 1984). The prevalence of non-psychotic psychiatric disorders is also equivalent in pregnant and non-pregnant women of similar ages, with the possible exception of depression, a disorder for which the evidence is mixed.

While pregnancy itself is not associated with serious or sustained episodes of psychiatric disorder, it is generally believed that childbirth can adversely affect the mental health of women in several ways. Women are at higher risk for psychotic disturbance after giving birth than at any other single point in their lives, and during the first month postpartum are 22 times more likely to be admitted to a psychiatric unit than other women of childbearing age

(Kendell, Chalmers & Platz, 1987) The incidence of postpartum psychosis is between 0.1% and 0.3% (Brockington, Winokur & Dean, 1982; Downey & Whitaker, 1992).

Much less serious, and much more common, than postpartum psychotic episodes, is the development of "baby blues". This mood disturbance often beings with periods of weeping on the third or fourth day after the baby is born and usually subsides without treatment by the tenth day after delivery (O'Hara, 1987; Stein, 1982). The incidence of postpartum blues is estimated at 50% to 70% (Downey & Whitaker, 1992).

The incidence of Major Depressive Disorder (MDD) during pregnancy and postpartum is an area of increasing controversy and conflicting evidence. The risk of MDD has generally been seen as increasing after childbirth, with an estimated incidence of about 10% to 20% (Cox, Connor & Kenell, 1982; Cutrona, 1983; Martin, 1977; Saks, Frank, Lowe et al., 1985). And some studies have shown moderate increases in rates of depression during pregnancy. For example, in a study of women assessed repeatedly for emotional disorders from the third week of pregnancy until their children were four years old, Kumar and Robson (1984) found that women were most at risk for developing new episodes of depression during the first trimester. These depressive episodes, experienced by 10% of their sample, were of moderate severity and of short duration, with most

cases in clear remission by the second and third trimesters.

The view that pregnant women are more likely to be depressed than other women, and the established belief that there is a significant increase in MDD after birth, has been challenged by the work of O'Hara and colleagues. In a prospective, controlled study, O'Hara, Zekoski, Philips and Wright (1990) compared 182 pregnant women matched with non-pregnant acquaintances of similar age, socioeconomic status, education and marital status. The rates of depression in the childbearing women did not differ from the control sample either during pregnancy or postpartum. Using Research Diagnostic Criteria (Spitzer, Endicott & Robins, 1978) 7.7% of the childbearing women met criteria for Major or Minor depression during the second trimester, versus 5.6% of controls evaluated at the same time. At nine weeks postpartum, 10.4% of childbearing subjects were depressed, versus 7.8% of the controls. None of these differences were statistically significant. O'Hara concludes that the incidence of nonpsychotic depression does not increase after childbirth, and points out that these findings are consistent with other recent, prospective studies (Cooper, Campbell, Day, Kennerley & Bond, 1988; Watson, Elliott, Rugg & Brough, 1984).

One difficulty in evaluating depressive disorder in pregnant and postpartum women is the overlap between somatic symptoms indicative of depression, and the normal

physiological changes of pregnancy and new motherhood. The criteria used to define an episode of major depression in the Third Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), require that at least five out of nine possible symptoms must be present during a two week period. The majority of these symptoms may be confounded by the state of pregnancy or the puerperium: eg. weight or appetite change, sleep changes, psychomotor retardation or agitation, and energy loss or fatigue. Furthermore, if a woman is on bedrest or antilabor medications during pregnancy, or if she has delivered by cesarean section, somatic symptoms of depression may be further confounded.

Surprisingly, the difficulty of defining depression in pregnant and postpartum women has rarely been dealt with in either the research or clinical literature. For example, the American Psychiatric Association's 1992 practice guidelines for diagnosing and treating MDD did not mention how somatic symptoms should be interpreted during pregnancy, even though the guidelines describe in detail the problems with prescribing psychotropic medication during pregnancy.

Only a few studies of depression during pregnancy and postpartum have discussed the assessment of somatic symptoms in their methodology (eg. Affonso, Lovett, Paul & Sheptak, 1990; Affonson, Lovett, Paul et al., 1992; O'Hara, 1986; O'Hara, Neunaber & Zekoski, 1984). In this study, I have

taken the conservative, common sense approach of O'Hara and colleagues: this methos "adjusts" the symptom level score for somatic item which the woman or the interviewer attributes to pregnancy. For example, in most cases, appetite increase and weight gain is not attributed to depression since it is part of the expectable changes which occur during pregnancy. This system, however, may tend to underestimate the percentage of women who are actually experiencing MDD, since many of the potential criteria become "not applicable". Taking this rigorous approach is one reason why a control group of pregnant and postpartum women is essential.

Chapter II: Part II - Infertility

Infertility as a stressor.

The woman who becomes a candidate for selective termination has almost always conceived multiple fetuses while undergoing infertility treatment. In many cases her pregnancy follows prolonged and previously unsuccessful medical interventions. Thus she may begin her pregnancy from an abnormal baseline, since infertility is known to be a significant emotional stressor.

Women who experience infertility have been reported to experience grief, anger, high levels of anxiety and depression, lowered self-esteem, and an impaired body image (Daniluk, 1988; Edelmann & Connolly, 1986; 1987; Lalos,

Lalos, Jacobsson, & von Schoultz, 1985; Menning, 1980; Stewart & Robinson, 1989). Marital difficulties and disturbances in sexual identity and functioning are common in couples who are involuntarily childless, as sexual relations become a chore to be performed on a specified schedule (Connolly, Edelmann, & Cook, 1987; Cook, Parsons, Mason et al., 1989; Devries, Degani, Eibschitz et al., 1984; Keye, 1984). Infertility leads to a developmental crisis as the woman is unable to make a major life transition which she has desired and planned (Kraft, Palombo, Mitchell et. al., 1980). Often experienced as a narcissistic trauma, the inability to bear children sometimes results in a "spoiled identity" (Mathews & Mathews, 1986). There are multiple losses involved, including genetic continuity, a sense of control over one's body and, for the woman, a loss of the experience of pregnancy, childbearing and breast feeding (Downey & McKinney, 1991). Abbey, Halman & Andrews (1992) found that the less personal control that women feel they have the greater the level of stress they experience during infertility treatment.

The social impact of infertility has been called a "stigma" (Miall, 1986). Women report jealousy and resentment of their childbearing friends, as they watch others enjoy the fulfilling aspects of pregnancy and parenthood, while they feel caught in a monthly cycle of hope followed by disappointment. In its severity as a

stressor, being unable to achieve the life goal of bearing children has been compared to the death of a loved one and to divorce (Mahlstedt, 1985). Studies have found that women tend to be more distressed by infertility than their spouses (Brand, 1989) and 57% of the women surveyed in a study by Keye, Deneris, Wilson and Sullivan (1981) said that infertility was the most difficult thing they had ever faced.

As Downey (1991) points out, the new reproductive technologies, such as in vitro fertilization (IVF) or gamete intrafallopian transfer (GIFT), implicitly promise to repair a deficit in the infertile woman's body image and self-representation. Active pursuit of costly and invasive new medical procedures may be used by the woman as a defensive strategy against painful feelings of defect.

In a study with many important implications for this dissertation, Leiblum, Kemmann and Taska (1990) asked women undergoing infertility treatment about their attitudes towards possible future pregnancies. They found these infertile women so strongly motivated to conceive that they were even positive about higher-order multiple gestations. Among the women in the study undergoing IVF, 98% said that they would rather have triplets than no biological children at all, 83.7% would rather have quadruplets, and 78.7% said would rather have quintuplets than no children. A similarly high willingness to have triplets, quads, or quints, rather

than no genetically related children, was also reported for women receiving Pergonal or artificial insemination by donor. It is unclear from the study whether the women were informed of the physical risks of multiple pregnancy. It is clear, however, that while undergoing infertility treatment, these women were more concerned with whether they would ever become pregnant than about the potential negative aspects of multiple gestation.

Infertility: Distress versus dysfunction.

Infertility, which affects approximately 24% of women at some point during their efforts to conceive, and leaves at least 3% of women involuntarily childless (Greenhall & Vessey, 1990) is clearly a distressing experience. However, there is conflicting evidence about whether infertile women differ in psychological functioning from their fertile peers.

Many uncontrolled studies have suggested that the stress of infertility lead to psychological impairment. For example, McEwan, Costello, and Taylor (1987) found that 37% of women developed psychological symptoms of clinical severity and that the more disturbed patients tended to be younger patients in whom the exact cause of the infertility was unknown. Link and Darling (1986) found that 39.5% of the infertile women in their study reported clinical levels of depression.

On the other hand, there are a growing number of controlled studies which suggest that infertility does not significantly increase risk for psychiatric disorder. Two reports of a study by Downey and colleagues (Downey & McKinney, 1992; Downey, Yingling, McKinney et al., 1989) indicate that women undergoing infertility evaluation and treatment do not differ significantly in severity of psychiatric symptoms, incidence of clinical depression, or measures of self-esteem and sexual functioning when compared with a control group of women receiving routine gynecological care.

In another controlled study of two groups of infertile women and a group with no known fertility problem, Freeman, Garcia and Rickels (1983) found no differences in neurotic personality structure or psychopathology. Paulson, Harrmann, Salerno and Asmar (1988) found that infertile women were as well adjusted psychologically, and had very similar personality profiles compared to fertile study volunteers. Callan and Hennessey (1989) compared women undergoing IVF with mothers and with married women who were childless by choice. No differences were found in the three groups in reported levels of self-esteem, life satisfaction and expected levels of success and fulfillment.

The growing evidence from controlled studies that infertility is distressing, but only rarely leads to disorder, is another indication of the importance of an

appropriate control group in studying the psychological impact of reproductive events (Ellsworth & Shain, 1985).

Pregnancy after infertility.

Given the number of studies on the psychological effects of infertility, it is surprising that there has been almost no focus on the women who have conceived after infertility treatment. There are very few published studies of previously infertile couples. Bernstein, Mattox and Kellner (1988) compared the psychiatric symptoms of 32 couples who had given birth one to five years earlier after undergoing infertility treatment with 20 couples who had never had a fertility problem. No significant differences were found in psychiatric symptoms among the two groups, except for slightly elevated mean scores for depression in the previously infertile women, and even this higher score fell well within normal limits. The authors concluded that the diagnosis and treatment of infertility is probably not associated with long-term detrimental effects for couples who subsequently deliver healthy infants.

While there is no empirical evidence that infertility adversely affects subsequent pregnancy and parenthood, the small body of anecdotal and clinical writing on the topic warns of the problems which previously infertile women face. As Menning (1980) puts it:

> "Don't they live happily ever after? Quite to the contrary, such couples may have some of the biggest

> adjustments and disappointments of their life ahead" (p.52).

Bernstein (1990) and Garner (1985) make similarly dire predictions that anxiety during pregnancy will be much greater for the previously infertile woman, and that her idealized view of pregnancy and motherhood do not prepare her for the unpleasant aspects of these life phases. Menning (1980) cites examples of women who feel that they have no right to complain about morning sickness or exhaustion following childbirth, while Garner (1985) reports from her clinical nursing experience that previously infertile women complain angrily about normal discomforts of pregnancy. All three authors paint an extremely negative picture of successfully overcome infertility: such women are afraid to enjoy their pregnancies, they lack role preparation because they have avoided friends with small babies, some women are said to have greater difficulties bonding with their babies, and an elevated risk for postpartum depression is posited. It is also implied that the negative effects of infertility such as marital discord and sexual dysfunction will not be easily resolved after conception takes place (Garner, 1985) and that the lowered self-esteem resulting from infertility may linger and result in a poorer quality of parenting (Bernstein, 1990).

According to this pessimistic view of pregnancy following infertility treatment, even before selective termination, because they are infertility patients, the

women who conceive multiple fetuses may be at risk for psychological difficulties. Although the position has yet to receive empirical support, it has been postulated that pregnancy after infertility treatment may be unusually anxiety provoking. It is for this reason that the control group chosen for this study is a sample of women who have also conceived after infertility evaluation or treatment, but who only conceived one or two fetuses and thus did not need to undergo selective termination.

Chapter II: Part III - Mulifetal Pregnancy and Motherhood

Triplets and more.

Higher order multiple pregnancies are medically difficult to manage and pose health risks to both mother and offspring. The interventions necessary to manage such pregnancies also appear to constitute a mental health risk. Attia and Downey (1992) describe the psychiatric treatment of a woman who conceived triplets after in vitro fertilization, and who had to undergo extensive pre-term hospitalization to prolong gestation. They describe the woman's increasing levels of anxiety and depression during this time, especially as her physical discomfort was exacerbated by anti-labor medications. The patient ""experienced the pregnancy as a series of choices in which maternal and fetal welfare were pitted against each other, and her own wishes were in conflict as to which should win

out"(p.219). During meetings with the psychiatrist, the woman said more and more frequently that she would not have tried to get pregnant if she had known what it would require to carry triplets.

The mental health risks of multiple gestation does not end with birth. As pointed out by Berkowitz, Lynch, Chitkara et al. (1988): "on the social side, the financial and emotional strains created by having to raise three or more siblings simultaneously can be devastating, especially if one or more is handicapped as a result of marked prematurity" (p.1043).

In a study of 14 families of twins, triplets and quadruplets, who were regularly observed from birth until the children were four to six years old, Goshen-Gottstein (1980; 1986) found that the infants of higher order multiple sets are at risk for neglect, scapegoating, and developmental delays. Some of the mothers of triplets, and two of the four mothers of quadruplets felt that the babies were merely a burden, did not play with them, and had as little contact with them as possible when the baby nurse was present. Other mothers took every opportunity to leave the babies at home with sitters and spent long periods away from home almost every day. Half of the mothers of triplets and quadruplets showed an inability to become attached to so many babies and related to only one or two of their infants while ignoring the less favored.

Other recent studies show that the mothers of triplets or quadruplets are at high risk for depression and other psychological difficulties (Bryan, 1991; Garel & Blondel, 1992; Menzel & Rotnem, 1990; Robin, Bydlowski, Cahen & Josse; 1991). Garel and Blondel (1992) assessed 12 mothers of triplets at 4 months and a year postpartum and found that 67% reported psychological difficulties which impaired their functioning, and that 25% of the women were being treated with antidepressants for major depressive disorder. Furthermore, there appeared to be little improvement in the mothers' psychological well-being between 4 months and 1 year after the triplets were born.

During the first month postpartum, most of the mothers in Garel and Blondel's study showed delayed maternal bonding. The women also reported that the triplets placed a strain on their marital relationship and that they felt socially isolated. The fact that the pregnancies were all a result of infertility treatment was associated with ongoing narcissistic injury: some of the women felt ashamed to be seen in public with the triplets because of intrusive questions about the way the children had been conceived. At a year, most of the women showed a tendency towards emotional detachment from the children in order to prevent feelings of frustration and guilt about the demands they felt unable to fulfill. As one mother put it; "When I cuddle one child, the two others cry and grab my legs, like

insects. I avoid being with them, playing with them" (p.730).

Robin, Bydlowski, Cahen and Josse (1991) report similar feelings of shame about the "abnormality" associated with triplets. Forty percent of the 14 mothers interviewed and observed by these authors were depressed when the triplets were four months old, and 30% were still depressed when the children were a year old. These depressed women were unable to imagine their future lives and could only cope from day to day. Several expressed a feeling of having been punished. Four months postpartum, more than half the mothers said that they experienced no pleasure in interactions with their infants. The authors judged only 20% of the families to have adjusted to the stresses of parenting triplets sufficient to justify a favorable prognosis for the children's development.

Carrying and caring for twins.

Women in this study have chosen not to take the risks associated with bearing triplets, quadruplets, or other "supertwins", as higher order multiple pregnancies are called by Scheinfeld (1967). However, even after women have undergone selective termination, their pregnancies are different from most because they have usually had a reduction to twins rather than a single baby.

Twin pregnancies are much more common than higher order

conceptions and much less medically precarious. Even before the widespread use of ovulation inducing drugs, twin births occurred in one out of 85 pregnancies (Schenker, Yarkoni & Granat, 1981). The number of twins conceived is actually much higher. The widespread use of ultrasound to monitor pregnancy a few weeks after conception has shown that many gestations initially consist of multiple embryos which spontaneously reduce to singleton pregnancies by the end of the first trimester -- a phenomenon known as the 'vanishing twin syndrome' (Bryan, 1983). A recent study by Blumenfeld, Dirnfeld, Abramovici et al. (1992) found that at least one fetus disappeared spontaneously in 88 out of 116 multiple pregnancies (76%).

Throughout pregnancy and postpartum, health problems for twins and their mothers are still several times more likely than with singletons. More than half of twins are born prematurely and thus are prone to associated health problems (Ainslie, 1985). Attempts to prevent premature labor, such as strict bedrest and antilabor medications have attendant physical and psychological risks. Three quarters of mothers with older children find their twin pregnancy more physically uncomfortable than previous singleton pregnancies (Hay & O'Brien, 1984).

The practical difficulties of parenting twin infants often places strain on marriages (eg. Bryan, 1983); leads to high rates of behavior problems in older siblings (Hay,

Gleeson, Davies et al., 1990; Sandbank, 1988); increased rates of depression and anxiety in new mothers (Hay & O'Brien, 1983); and has even been associated with significantly higher rates of child abuse (Groothuis, Altemeir, Robarge, et al., 1982).

As part of the La Trobe Twin study of more than 400 Australian families, (eg. Hay & O'Brien, 1983; Hay & O'Brien, 1984; Hay, Gleeson, Davies et al., 1990) researchers found that mothers of twins were about three times as likely to rate themselves as tired, frantic, or anxious as mothers with one new baby. A total of 29.7% of mothers of twins reported extreme depression, five times the rates of singleton mothers. In a La Trobe subset of 41 mothers with twins less than four years old, 9.8% of mothers were unhappy about having twins, and 24.4% would not want their own children to have twins. Other researchers have found similar negative reactions to parenting twins. For example, Thorpe, Golding, MacGillivray and Greenwood (1991) found that mothers of 5 year old twins were three times as likely to be depressed as mothers of singletons.

Most selective termination patients in this study will be pregnant with or parenting twins, and for this reason may be more prone to depression and psychiatric symptoms than the control subjects who have a single baby.

Chapter II: Part IV - Abortion

Psychological effects of elective abortion.

To formulate hypotheses about the psychological effects of selective termination it may be helpful to review the literature on elective abortions of an entire pregnancy. In general, voluntary abortions pose little psychiatric risk. Every major study conducted in the past twenty years has come to the same conclusion: legalized, first-trimester abortion of an unwanted pregnancy is rarely associated with adverse psychological effects. In fact the most common feeling women express after abortion is relief (eg. Adler, David, Major et al., 1992; Burnell & Norfleet, 1987; Greer, Lal, Lewis, Belsey & Beard, 1976; Lazarus, 1985; Osofsky & Osofsky, 1972; Stotland, 1991a).

Both short and long term adverse reactions are rare. Payne, Kravitz, Notman and Anderson (1976) found that even high levels of anxiety and depression usually declined to normal levels by six months after the abortion. Russo and Zierk (1992) found that there were no negative associations with self-esteem up to eight years following an elective abortion. Overall, since the legalization of abortion only 5 to 10% of women have been found to suffer severe negative reactions (Blumenthal, 1991).

Adler et al. (1992) point out how common abortion has become in our society: since Roe verses Wade in 1973 the number of elective abortions in the U.S. has risen to

between 1.5 and 1.6 million per year. About 3 out of 10 pregnancies are voluntarily terminated and an estimated 21% of women of childbearing age have undergone the procedure.

Although few long term negative reactions have been found, many women are distressed by the unwanted pregnancy and decision to undergo the abortion. Consistent with other studies, Lazarus (1985) found that guilt and depression were reported by 15% of abortion patients, although these negative affects were often mixed with more positive feelings. His research indicates that for many women, denial and rationalization played a major role in assuaging negative emotions. Romans-Clarkson (1989) concurs that denial is an important defensive strategy and notes that most women who decide to abort actively inhibit fantasies of the fetus.

Women tend to be most distressed during the time period before the medical procedure, as they cope with news of the unwanted pregnancy and make their decision to terminate. Greer et al. (1976) found that 37% of the women in their study reported considerable or moderate guilt feelings before the abortion, but at three months after the procedure this had dropped to 13%. At a follow up interview after 18 months, 8 out of the 360 women (2%) said that they regretted having the abortion.

Reviews of the literature (eg. Adler et al., 1992; Blumenthal, 1991; Freidman, Greenspan & Mittleman, 1974;

Minden & Notman, 1991; Romans-Clarkson, 1989) agree on the risk factors for maladaptive responses to termination. These include: marked ambivalence about the decision to abort (ie., the woman wants a baby and has cathected the fetus); the failure of family to support the decision; coercion by family or physicians; and abortion for medical indications. A history of prior psychiatric problems also greatly increases the risk for adverse reactions.

The literature on voluntary, legal abortion would suggest that selective termination patients will similarly suffer few adverse psychiatric effects from their decision abort some of the fetuses they carry. As with elective abortion of an entire pregnancy, among women who undergo multifetal reduction, anxiety and distress may be greatest before the procedure, denial and rationalization may be frequently used defenses, and only a minority of women are expected experience regret about the procedure. If selective termination is similar to elective abortion then negative mental health outcome may be associated with marked ambivalence, feeling coerced, and prior psychiatric difficulties.

Medically indicated abortions.

Most traumatic of all abortions are those for medical reasons, such as prenatal diagnosis of genetic defects, inherited disorders, or suspected fetal malformation (see

Rowley, 1984, for a review of genetic screening and prenatal diagnosis). Maternal contraction of infectious diseases such as rubella, or exposure to toxic drugs, may also be reason for termination. Researchers are unanimous in declaring these late abortions of wanted babies as a traumatic for the mother (Blumberg, Golbus & Hanson, 1975; Donnai, Charles & Harris, 1981; Furlong & Beck Black, 1984; Katz-Rothman, 1986; Landenburger & Delp, 1987; Langer & Ringler, 1989). About 1,500 to 3,750 second trimester abortions are performed each year as a result of a detected defect in the fetus (Grimes, 1984).

Among ten women who were interviewed after a second trimester abortion because a fetal malformation had been diagnosed, Jorgensen, Uddenberg and Ursing (1985) found that all of the women were severely traumatized by the event, reporting initial feelings of unreality and shock, followed by sadness and despair. In their study, four women reported feeling better by 6 months after the procedure, but more than half were still depressed up to 34 months afterwards. These authors conclude that abortions because of medical problems represent a severe crisis for women, and that some patients may become "mentally disturbed to such a degree that long-term psychotherapy is required" (p38).

In a study by Blumberg, Golbus and Hanson, (1975) the incidence of depression following abortions for genetic reasons was 92 percent among the women, even higher than

that for delivery of a stillborn child. The researchers also found such terminations to be a severe marital stressor: four of the 13 couples separated during the study. Despite the emotional trauma of the procedure, however, most of the families said that they would repeat their course of action and considered the abortion preferable to the birth of a defective child.

Lloyd and Laurence (1985) compared women who underwent second trimester abortions for neural tube defects of chromosome abnormalities with women who underwent elective first trimester abortions and women who experienced a stillbirth or neonatal death. Of the 48 women in the genetic abortion group, 77% suffered from acute grief reactions. This was comparable to the women who had experienced a perinatal death. After six months, however, 46% of those who underwent medically indicated abortions were still symptomatic, compared with no such extended reactions among either the early abortion or perinatal loss groups. These authors found that medical and psychological counseling was offered to all of those who had suffered perinatal losses, but to only 8 of the 48 women who had terminated their pregnancy for genetic reasons. Lloyd and Laurence conclude that the long term negative reactions of these women may be partly because of the lack of follow up and counseling services post abortion.

Medically indicated terminations of an entire pregnancy

may be even more stressful than selective termination because the loss is unmitigated by the potential outcome of one or more healthy babies. Second trimester, medically induced abortions are also more physically and emotionally stressful for the mother than first trimester abortions (Katz Rothman, 1986). Second trimester terminations occur after quickening when the pregnancy is likely to be more intensely cathected. And the procedure itself is more medically complicated, involving either the physcial risks and discomfort of general anesthesia, or the induction of labor and the attendant physical pain of childbirth.

Chapter II: Part V: Involuntary Fetal Loss

Miscarriage, stillbirth, and neonatal death.

Understanding the dynamics of involuntary fetal and neonatal loss is important with regard to this study for two reasons. First, a few women in both the subject and control groups of this study will lose their entire pregnancy: miscarriage occurs in approximately 15% of pregnancies and is significantly more likely following ovulation induction (Jansen, 1982). Second, the emotional response to miscarriage and later fetal deaths may be similar to women's responses to selective termination because the life of a wanted baby has been lost.

Unlike voluntary abortion, which poses few psychiatric risks, the evidence is conclusive that spontaneous abortion

and perinatal deaths have a severe negative impact on parents (eg. Elkin, 1990; Lasker & Toedter, 1991; Lembau, 1988; Peppers & Knapp, 1980; Stack, 1984; Theut, Pederson, Zaslow et al., 1989; Zeanah, 1989). Miscarriage (the spontaneous loss of a pregnancy before 20 weeks), stillbirth (the loss of a potentially viable fetus after 20 weeks), and neonatal death (defined by most studies as the death of an infant in the first month after birth) each result in severe grief reactions in almost every parent who experiences such a loss, and puts many at risk for psychiatric disorder. For example, marked risk for depression was found among women who had miscarried in a recent, controlled study by Neugebauer, Kline, O'Connor et al.(1992). These authors compared a group of 382 miscarrying women with 283 pregnant women and 318 community women who were not pregnant. Two weeks after the miscarriage 36.2% of the women showed clinically severe levels of depressive symptomotology, a proportion 3.5 times the rate in pregnant women and 4.2 times that in community women. Depression was not limited to shortly after the fetal loss. Among miscarrying women first interviewed at 6 months after the loss, the proportion highly symptomatic was 3 times that in the community sample. These findings are consistent with other studies, such as that of Friedman and Gath (1989) who found that 48% of their sample were suffering from a depressive disorder a month after a miscarriage.

Similar psychiatric risk is present after stillbirth and neonatal death. Murray and Callan (1988) found that the mean depression scores of 130 parents who had experienced a perinatal death were significantly higher than community norms, although lower than depressed psychiatric patients. Nicol, Tompkins, Cambell and Syme (1986) found that among 110 mothers interviewed 6 to 36 months after a perinatal death that 21% showed "pathological bereavement", defined as a marked deterioration in health, including mental health, and difficulties in social functioning. The women in this study reported a wide range of negative symptoms including insomnia (35%), nightmares (23%), depression (22%), and feelings of panic (18%).

Leon's model and perinatal loss.

As previously discussed, Leon (1986; 1987; 1990; 1992a; 1992b) contributes to a theoretical understanding of perinatal loss by assessing its impact on women from four psychoanalytic vantage points -- development, drive, object and self. From a developmental perspective, loss of a first pregnancy prevents the woman from attaining the social role of motherhood. He points out that this may be one reason why bereavement support groups may be helpful after miscarriage and stillbirth: in addition to facilitating the mourning process, a reference group is provided which helps alleviate a sense of isolation.

Focusing on the drive model, the interruption of pregnancy occurs during a time of intrapsychic regression and may interfere with the mother's reworking of earlier conflicts. Leon (1986; 1987; 1990) gives several clinical examples of how a woman's loss of her baby becomes linked with earlier oedipal fixations, ambivalence toward her own mother, and unresolved separation-individuation issues.

The object relations model focuses on the relational aspects of the loss: a loved child has died. Subsequent mourning for the loss of a valued relationship is especially pronounced in the later stages of pregnancy or after birth, when an attachment has been formed with the child as a separate, distinct person. But even in early miscarriage, there is the loss of the legacy of internal and idealized object images with which the baby has been imbued.

Finally, using a self psychological model, Leon points out that many common reactions to perinatal loss can be understood as a reaction to narcissistic injury; these reactions include low self-esteem and feelings of emptiness, hopelessness, helplessness, guilt and anger.

Risk factors for adverse outcome after perinatal loss.

Although it is clear that spontaneous pregnancy loss constitutes a trauma which results in severe grief reactions, it is much less obvious which factors put women at greatest psychological risk. For example, there is

conflicting data with regard to prior reproductive history, including fertility problems and previous miscarriage. Some studies (eg. Friedman & Gath, 1989) have linked prior fetal loss with more severe symptoms, while others indicate no significant associations (Nicol, Tompkins, Cambell & Syme, 1986; Toedter, Lasker & Alhadeff, 1988).

Important in its implications for this study, is the lack of consensus concerning the effect of having prior children in the family. Neugebauer et al. (1992) found that 2 weeks after miscarriage the childless women were 11 times as likely to be depressed as women in the community. This study and others (eg., Graham, Thompson, Estrada & Yonekura, 1987) have found that the more live children a woman has, the less likely she is to be depressed after the miscarriage. Other studies, however, have found no such protective benefits associated with having previous children (Friedman & Gath, 1989; Toedter et al., 1988). Few studies have separated feelings of grief from behavioral manifestations of depressive disorder: perhaps women with older children feel the loss of a pregnancy as intensely as the childless, but are less incapacitated because of their commitment to caring for the children they have.

Spontaneous partial loss in mulitple pregnancies.

Most directly applicable to this study, is data about the spontaneous loss of one or more babies in a multiple

pregnancy. Here, again, the research results are contradictory. Larouche, Lalinec-Michaud, Engelsmann et al, (1984) found that women who experienced a perinatal death, but who had a surviving twin baby, reported lower levels of mourning. But other studies show a high level of bereavement among mothers who lost one twin (Bryan, 1986; Rowe, Clyman, Green et al., 1978), and some clinicians have stated that this loss is more difficult for mothers to adjust to than other perinatal deaths (Lewis, 1980).

Sainsbury (1988) points out several factors which may make grieving for perinatal death in a multiple pregnancy especially difficult. First of all, during the period of deepest mourning the mother must still cope with the tasks of parenting one or more surviving infants, who are often premature and thus especially difficult to care for. Second, the mother's loss is often minimized by well-meaning family and friends who mistakenly urge an exclusive focus on the living child or children. In Bryan's (1986) study of 14 bereaved mothers of twins or triplets who had lost a newborn, all of the mothers still thought of their surviving child as a twin or triplet. For example, one woman felt that her son was "only half a child" and another felt that her baby was "incomplete." Six of the 14 mothers admitted feeling resentful or rejecting of the survivors, and for some women this lasted for many months. Other women in the study tended to overprotect the living babies.

There may also be important implications for women's reactions after selective termination in Phipps (1985) account of interviews with 15 couples who had a healthy child subsequent to a perinatal death. These couples all treated their subsequent pregnancies as tasks to be endured rather than enjoyed. The pregnant women's experience were characterized by anxiety, hypervigilance to potential negative outcomes, and a conscious attempt to limit emotional investment in the fetus. Parents delayed announcement of the pregnancy, told fewer people about it, generally preferred not to have a baby shower, and often waited until after birth to choose a name for the child. One of the questions for the present study is whether the selective termination "spoils" the pregnancy in the same manner as a prior fetal loss.

Chapter II: Part VI - The Ethics of Multifetal Reduction

Ethical positions concerning the reduction of multifetal pregnancies have been indirectly reflected in disagreements about what to call the procedure (Berkowitz & Lynch, 1990). The terminology used has ranged from euphemistic phrases such as "selective continuation" (Birnholz, Dmowski, Binor & Radwanska, 1987) to terms which have connotations of illegal killing, such as "selective embryocide" (O'Keane, Yuen, Farquharson & Wittman, 1988).

Physicians have not only disagreed about what to call

the procedure, but whether to perform it at all. In a survey of the attitudes of health care providers concerning the ethics of selective termination, Evans, Drugan, Bottoms, et al. (1991) found that legal voluntary abortions of an entire pregnancy were considered more acceptable than selective termination of normal fetuses in multifetal gestations.

As well as being discussed among physicians, the ethics of multifetal reduction have been debated in religious circles, as well as in the medical profession. The Roman Catholic church condemns, without exception, any destruction of fertilized ovum -- including selective termination for any reason (papal papers cited in Gazi & Wolowelsky, 1991). Authorities in the Jewish religion take a different position, since traditional Jewish ethics and law differentiates between an unborn fetus, especially during the first 40 days after conception, and a child after birth. If the mother's life might be in danger, according to Jewish law she has a right to abortion of a singleton or multiple pregnancy. If all of the fetuses in a multiple pregnancy will die without a reduction, than selective termination is considered ethical according to several rabbinical authorities (Grazi & Wolowelsky, 1991).

In this study, women's religious viewpoints are expected to interact with their attitudes towards and reactions to selective termination. Specifically, women with strong Catholic beliefs are expected to feel more

guilty and distressed about the procedure.

Whatever a woman's religious beliefs, the limited information that exists suggests that women find it very difficult to imagine taking the life of a wanted baby. As physicians who perform the procedure have written:

> "Patients who choose to undergo first-trimester reduction procedures frequently have an extraordinarily difficult time in deciding to do this. After years of infertility, the thought of intentionally terminating the life of a fetus that is thought to be healthy is abhorrent to most couples" (Berkowitz & Lynch, 1990, p.874).

Before women are faced with the realities of multifetal gestation few can imagine undergoing a pregnancy reduction. As reported previously, Leiblum et al. (1990) found that aproximately three quarters of infertility patients surveyed would rather have quintuplets than reduce to a single fetus.

Once the hypothetical situation becomes a reality, however, attitudes appear to change. Lipitz, Frenkel, Watts, et al. (1990) report that in the past three years, since their obstetric departments have been performing reductions in higher order multiple gestations, almost 90% of couples have decided to undergo the procedure. A goal of this dissertation is to study the attitudes of ST patients towards the termination and how those attitudes and reactions are shaped by each woman's ethics.

Chapter III

Methodology

Chapter III: Part I - Procedures and Subjects

Selective termination subjects.

Women who had undergone a selective termination of their multifetal pregnancy at Columbia Presbyterian Hospital were recruited as subjects for this dissertation project. The women were all patients of the collaborating physician, Ilan Timor, M.D., and each underwent first-trimester fetal reductions using the transvaginal, ultra-sound guided technique described by Brandes, Itskovitz, Timor-Tritsch et al. (1987). Eligible subjects were mailed a letter from Dr. Timor inviting them to participate. Included in the mailing was an informed consent form about their rights as study subjects if they chose to participate. (See Appendix A for the Recruitment letter and the informed consent form). Before selective termination (ST) patients were contacted, the study methodology and instruments were approved by the Institutional Review Boards of both Columbia Presbyterian Medical Center and the New York State Psychiatric Institute.

Data was collected from each participating subject via a single telephone interview which took approximately one hour and which was scheduled at the woman's convenience. An attempt was made to interview some ST subjects while they were still pregnant and others after they had already given

birth. Contacting the ST patients at different points in time was one way to explore whether the psychological effects of selective termination was related to the amount of time which had elapsed since the medical procedure.

A total of 54 women who had undergone pregnancy reductions were invited to participate. Two women were considered ineligible because they did not speak enough English to be interviewed. Eight women refused to participate in the study; a refusal rate of 15.4%.

After the first 10 pregnancy reduction subjects had been interviewed by telephone, a new research protocol was submitted to the CPMC Institutional Review Board asking permission to audio-tape the subject interviews. Permission was granted, and subsequent interviews were audiotaped with relevant sections transcribed. Only one woman who participated in the study after this procedural change chose not to have her interview tape recorded.

Of the 44 ST patients who were interviewed, 2 were excluded from the statistical data analysis because they were contacted more than two years after undergoing the pregnancy reduction. While not included in formal analyses, the subjective descriptions of these two women are included in the qualitative results section. The remaining 42 reduction patients were all interviewed within one year of the pregnancy reduction.

Control Subjects.

The control data for this study had already been collected as part of a longitudinal study of the mental health effects of infertility conducted by Jennifer Downey, M.D., Assistant Professor of Clinical Psychiatry at Columbia University College of Physicians and Surgeons . This dissertation project was designed so that subjects from Downey's study could be used as controls, and thus much of the methodology and interview instruments are based on her work.

In Downey's study, 118 women who had recently presented to a physician for infertility evaluation filled out self report questionnaires and returned them by mail. This questionnaire included demographic data and questions about their reproductive history (see Downey, Yingling, McKinney et al., 1989; Downey & McKinney, 1992).

These 118 women were contacted again by telephone approximately nine months after filling out the first questionnaire. (As Dr. Downey's research assistant, I conducted all of these follow-up interviews). At this time, 44 of the women reported that they had conceived. It is these 44 women who comprise the control group for the present study.

Like the selective termination subjects, these controls became pregnant after experiencing concerns about their fertility. However, none of the control subjects conceived

more than two fetuses and thus none underwent selective termination.

Control data for this dissertation was taken both from the initial self report questionnaire, and from the second telephone interview in Downey's study. The items taken from the first questionnaire included basic demographic data and questions about reproductive history, such as prior infertility evaluation and treatment. Data taken from the telephone interview included current marital satisfaction, current level of self satisfaction, current psychiatric symptomotology, and the measure of depressive episodes experienced during the nine months prior to the interview. Each women's reproductive history was updated with new information from the telephone interviews. Data from the two sources was combined and recoded onto the instrument designed for this dissertation.

Chapter III: Part II - Instruments (See Appendix B)

1) **The Demographic and Reproductive Functioning Interview** elicits demographic data and the details of each subject's reproductive history including prior infertility evaluation and treatment. The questionnaire is adapted from Downey's self report questionnaire given to infertility patients (Downey, Yingling, McKinney et al., 1989). The

single item measuring self-esteem was based on work by Dohrenwnend, Shrout, Egri et al. (1980). The item measuring marital satisfaction was based on an inventory by Stuart and Stuart (1973). An item indicating current, general mood was based on an item used by Neugebauer et al. (1992) adapted from work by Luria (1979). For ST patients, additional questions were added about medical aspects of the selective termination and subsequent pregnancy and delivery.

2) **The Brief Symptom Inventory** (BSI: Derogatis & Spencer, 1982) surveys the severity of 53 psychiatric symptoms for the previous week. (Note that the BSI is not included in the copy of the Instument -- Appendix B -- for copyright reasons). It yields scores on 9 symptom dimensions: somatization, obsessive-compulsive behaviors, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. In most non-psychiatric populations the idice of psychoticism measures social alienation. The BSI also establishes three global scores for symptom severity. Developed as a shorter form of the Revised Symptom Checklist 90 by Derogatis (1977), the BSI has convergent validity when compared with scales such as the Minnesota Multiphasic Personality Instrument and the General Health Questionnaire (Derogatis & Melisaratos, 1983).

The BSI is often used to screen for psychiatric

disorder by determining whether an individual's scores meet "an operational definition of caseness" (Derogatis, 1992; p.36). A positive case is defined as having a T-score of greater than or equal to 63 on either the global severity index, or on two of the nine primary symptom dimensions. For this study, the T-score norms used will be that from a community sample of 341 non-patient females (Derogatis, 1982; 1992).

3) **The Pregnancy Reduction Interview**, given only to women who underwent selective termination, asks about details of the woman's emotional reactions to the medical intervention and her subsequent experience of pregnancy and motherhood, or miscarriage. Developed specifically for this study, it includes both open-ended and structured questions about the impact of pregnancy reduction. As per methodological suggestions for avoiding interview responses which constric the respondent's frame of reference (Schuman & Scott, 1987), open-ended questions preceded multiple choice items covering the same topics.

4) **The Mood Disorder Interview** is a self-report measure by Downey (Downey et al., 1988) which was adapted from the Schedule for Affective Disorders and Schizophrenia -- Life-time Version (SADS-L: Spitzer & Endicott, 1979). The version used in this study elicited presence or absence and

severity of symptoms for current depressive episodes and for those occurring during the nine months preceding the telephone interview. Test-retest and interrater reliability of the SADS-L have been found to be high in telephone versions (Paulsen, Crowe, Noyes and Pfohl, 1988).

Chapter III: Part III -- Measuring Depression

Major depressive disorder.

Criteria of the Diagnostic and Statistical Manual of Mental Disorders - Third Edition - Revised (DSM III-R: American Psychiatric Association, 1987) were used to define an episode of major depressive disorder. However, it should be noted that the term MDD is technically inaccurate for many of the subjects in this study no matter how severe their reported depressive symptoms.

The DSM-III-R rules out MDD in the case of "uncomplicated bereavement". Specifically, the manual states that MDD should not be given when the disturbance is "a normal reaction to the death of a loved one" (American Psychiatric Association, 1987, p.223). For the subset of both ST patients and controls in this study who spontaneously abort the entire pregnancy, depression following the loss of their wanted babies could certainly be considered "uncomplicated bereavement". If a woman attributes her depression to the loss of a fetus after selective termination, this too might be defined as a form

of 'normal' bereavement.

On the other hand, when determining whether or not a woman's experience of depression is severe enough to warrant treatment, such making a referral for psychotherapy and/or antidepressant medication, the term MDD is still a useful, standardized reference point. Thus, for the purposes of this study, MDD is used as a convenient way of indicating an episode of depression of established minimum severity and duration.

As mentioned in the Literature Review, depressive symptoms were evaluated using an adapted version of the method used by O'Hara and colleagues (O'Hara, 1986; O'Hara, Neunaber & Zekoski, 1984; O'Hara, Zekoski, Philipps & Wright, 1990) in their studies of depressive disorder in pregnant and postpartum women. Using this approach, somatic symptoms were not rated as positive if they were the expectable results of physical aspects of pregnancy. This is also consistent with the policy specified in the DSM-III-R, which states "Do not include symptoms that are clearly due to a physical condition" (American Psychiatric Association, 1987, p.222).

For example, if a woman reported appetite increase and weight gain during her second or third trimester of pregnancy, it was rated as "not applicable" rather than as a positive indication of depressive symptomotology. On the other hand, if a pregnant woman reported a loss of appetite

due to her depressed mood, and said that she did not gain the weight that had been expected during that phase of pregnancy, she was rated as having an appetite disturbance indicative of depression.

Additional ways of measuring depressive episodes.

Because up to five of the nine DSM-III-R indices of depression are somatic symptoms which may become "not applicable" using a conservative diagnostic approach with pregnant and postpartum women, other categories of depression are reported in this study to give a broader picture of the mental health status of participating subjects. First of all, a category was created for women who reported depressive symptoms of clinical severity, even if the number of positive symptoms reported did not meet criteria for Major Depressive Disorder. These "Clinically Severe Depressions" were defined using the screening items of the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). Specifically, clinically severe depressions were defined as 1) lasting at least two weeks, and 2) resulting in behavioral impairment, and/or help seeking behavior, such as a consultation with a psychotherapist.

Another category was created for women who indicated that they were consistently depressed for at least a full week during the nine months prior to the interview. This was the least severe indication of depression reported.

Finally, depressive episodes for all subjects were ranked according to severity. This was done by totaling the number and severity of all reported symptoms, and adding a modified calculation for the length of the depression. See Appendix C for further details of this calculation. Ranking all subject by the severity of their depressions more sophisticated data analyses of potential risk factors.

Chapter III: Part IV - Data Analysis Plan

Quantitative data analysis.

For quantitative data analysis, the Statistical Package for the Social Sciences (SPSS for Windows, Release 5.0, 1992) was used to conduct descriptive and univariate statistics. Two-tailed tests of significance reaching at least the .05 level of confidence are reported unless otherwise stated.

Parametric statistics, such as t-tests, Pearson correlations, and one-way analysis of variance tests were used when interval data was found to be normally distributed, and when the variance of the groups were not significantly different.

In this small sample, however, non-parametric tests were more often appropriate, and included Chi-Square comparisons, and rank order tests such as the Spearman Rank Order Coefficient, Mann-Whitney U, and the Kruskal-Wallis One-Way ANOVA. Fisher's Exact Test was used instead of Chi-

Square estimates of probability when any expected cell value in a 2 x 2 table was less than 5.

In analyzing the Brief Symptom Inventory, parametric tests were used even thought the data was not normally distributed. This exception was made because Derogatis (personal communication) utilized parametric tests in establishing BSI published norms.

All statistically significant findings are reported in the results section. Because of the large number of variables which were compared, non-significant findings are often described separately in the Appendix.

Qualitative data analysis.

Qualitative data analysis focuses on descriptive statistics multiple choice questions, such as the percentage of subjects responding positively to a given item. Responses to open-ended questions, and subject's spontaneous comments, are used to illustrate commonly held points of view, examples of striking and unusual unique reactions, or to back up clinical hypotheses and conclusions. Special attention was given to fantasies about the terminated fetuses, or contradictory comments that might have indicated unconscious conflicts about the procedure. No attempt was made to code the tape-recorder and transcribed interviews, although such an approach would be possible in future reports on the data.

Chapter III: Part V - Hypotheses

Hypothesis I: The stress of multifetal pregnancy and selective termination puts women at risk for depressive disorder and elevated levels of psychiatric symptomotology.

1 A) Women who have undergone multifetal reduction are expected to be more likely to report an episode of depression during the 9 months prior to the interview than control women.

Higher rates of depression are expected not only because of the effects of multifetal reduction but because these women are more likely to be carrying twins than women in the control group and thus are more likely to experience other stresses such as bedrest during pregnancy and preterm labor.

1 B) Women who have undergone multifetal reduction are expected to have higher mean levels of current psychiatric symptomotology than control women. A higher percentage of ST patients with a successful pregnancy outcome are expected to meet BSI criteria for "positive caseness" than the control subjects with a successful pregnancy outcome.

1 C) Among ST patients, the severity and number of positive psychiatric symptoms is expected to be inversely associated with length of time since the pregnancy

reduction. The more recent the selective termination, the more symptomatic a woman is expected to be.

Hypothesis II: Women in both the reduction and control groups will be at risk for major depressive disorder and increased levels of psychiatric symptomotology if they spontaneously abort the entire pregnancy.

2 A) The majority of women who experience fetal loss of the entire pregnancy will report clinically significant episodes of depression.

2 B) The rate of depressive disorder and mean psychiatric symptom levels of women who miscarry after selective termination will not be significantly different from women in the control group who miscarry. The loss of a desired pregnancy is expected to be a negative life event that will supersede any negative emotional reactions associated with the selective termination.

2 C) Whether or not they have undergone selective termination, women who lose the entire pregnancy will report significantly higher rates of depression and psychiatric symptoms than women who are pregnant or have given birth to healthy babies at the time of the interview.

Hypothesis III: There will be identifiable factors which predispose women to react adversely to the multifetal reduction.

3 A) Religion. Because of strict prohibitions against abortion by the Roman Catholic Church, Catholic ST patients are expected to report significantly higher rates of depression, and more severe feelings of guilt, than women with other religious affiliations.

Self-rated religiosity is also expected to be correlated with distress post-reduction. It is expected that the more religious a woman rates herself, the more likely she is to report a depressive episode.

3 B) Marital Satisfaction. Marital satisfaction is expected to be correlated with depressive episodes and current psychiatric symptomotology. Women unhappy in their marriages are expected to report higher rates of depression and more psychiatric symptoms.

3 C) Infertility History: The longer a woman has been trying to get pregnant, the more vulnerable she is expected to be to depression and other psychiatric symptoms. Thus psychiatric symptoms and rates of MDD are expected to be positively correlated with length of infertility treatment.

Chapter IV

Results

Chapter IV: Part I - Demographic Information and Reproductive History

Pregnancy status at interview.

Of the 42 participating selective termination (ST) patients, 40.5% were pregnant at the time of the interview, 40.5% had given birth, and 9.0% had miscarried, or decided to terminate the pregnancy because of physical problems, such as genetic anomalies in the remaining fetuses. Among the 44 controls, 54.5% were pregnant, 22.7% had given birth and 22.7% had spontaneously aborted the pregnancy. The differences in pregnancy status among ST patients and controls was not significant ($\chi 2=3.19$; N.S.). (See Figures A and B).

The mean number of weeks pregnant among the 17 pregnant ST subjects was 24.7 weeks which did not differ significantly from that of the 10 pregnant controls, who were 20.5 weeks pregnant on average ($t=1.40$; N.S.). Among the postpartum ST patients, the mean number of days between giving birth and the interview was 92 days. This did not differ significantly from the postpartum controls, who were interviewed an average of 52 days after giving birth ($t=2.00$; N.S.). For the 8 ST patients who miscarried, the mean number of days between miscarriage and the interview

was 138 days. This did not differ significantly from the average of 127 days between miscarriage and interview for the controls (t=.23; N.S.).

Demographic data.

The 42 ST patients and 44 controls did not differ significantly on most demographic variables including age, partner's age, ethnic group, and education level religion. Most subjects were white, well-educated women in their 30's (See Table 1).

Marital satisfaction was high in both groups. Eighty-eight percent of ST patients said that they were "very happy" in their marriage, compared with 77.3% of controls. The differences in marital satisfaction between the two groups were not signficant ($\chi 2=1.75$; N.S.).

Subject and control groups did differ significantly in terms of religion ($\chi 2=10.09$; $p<.02$). There were higher percentages of Agnostics or Atheists in the control group, and a higher percentage of 'Other' religions, such as Moslem and Hindu.

On average, ST patients reported higher self-esteem than controls ($\chi 2=6.31$; $p<.05$). However, this significant difference was accounted for by the responses of subjects who miscarried. All 8 of the ST patients with an unsuccessful pregnancy outcome said that they were "somewhat satisfied" or "very" satisfied with themselves. This was

Table 1. DEMOGRAPHICS

Demographic Characteristic	ST Patient N = 42	Control N= 44	Statistic Two tailed t-test	
Age	M=33.1 yrs.	M=33.4 yrs.	t=.32	N.S.
Partner's Age	M=35.7 yrs.	M=36.5 yrs.	t=.76	N.S.
Ethnicity *			**Chi-Square**	
White	90.5%	88.7%		
Black	9.5%	2.3%	$\chi 2$=.35	N.S.
Hispanic	0.	2.3%		
Asian	0.	6.8%		
Education				
High School	11.9%	6.8%	$\chi 2$=1.33	N.S.
Partial College	21.4%	25.0%		
College	35.7%	29.5%		
Graduate Training	31.0%	38.6%		
Religion *				
Catholic	28.5%	29.5%	$\chi 2$=10.09	p<.02
Protestant	31.0%	18.2%		
Jewish	38.1%	27.3%		
Agnostic/Atheist	2.4%	13.6%		
Other	0.	11.4%		
Marital Satisfaction				
Very Happy	88.1%	77.3%	$\chi 2$=1.75	N.S.
Somewhat Happy	9.5%	18.2%		
Neutral	0.	0.		
Somewhat Unhappy	2.4%	2.3%		
Very Unhappy	0.	2.3%		
Self-Esteem				
Very Satisfied	69.0%	47.7%	$\chi 2$=6.31	p<.05
Somewhat sat.	28.6%	36.4%		
Neutral	2.4%	4.5%		
Somewhat unsat.	0.	11.4%		
Unsatisfied	0.	0.		

*Although percentages for each category are listed, when performing Chi-Square tests for ethnicity the categories Black, Hispanic and Asian were compressed to eliminate empty cells. When calculating the Chi-Square value for Religion, the Agnostic/Atheist category was combined with that for Other religions.

true for only 50% controls who miscarried, and four of these 10 women said that they were "somewhat dissatisfied" withthemselves. When only subjects with a successful pregnancy outcome were compared, there were no differences in reported self-esteem ($\chi 2=.72$; N.S.).

Reproductive history.

There were no significant differences between the ST patients and contols on many aspects of reproductive history, including number of prior voluntary abortions, number of prior spontaneous abortions, or age at current pregnancy. There was no significant difference in the number of times ST patients and controls had ever been pregnant, or the percentage which had experienced primary infertility before the current pregnancy (33.3% of ST patients vs. 47.7% of controls)(See Table 2).

Although the two subject groups did not differ in number of times pregnant, even before the multiple pregnancy, ST patients were more likely than controls to have children. Almost half (45.2%) of ST patients had at least one birth child, as compared with 18.2% of controls ($\chi 2=7.30$ $p<.01$). Many of the ST patients were returning for a second course of successful fertility treatment when they conceived the multiple pregnancy.

Among the control subjects, there were 2 twin pregnancies and the rest were single fetuses. Of course,

TABLE 2. REPRODUCTIVE HISTORY

Non-Significant Comparisons

Reproductive Characteristic	ST Patient Mean	Control Mean	Mann-Whitney U	
Age at this pregnancy	32.6 yrs.	32.9 yrs.	U=852.5	N.S.
Age at first pregnancy	28.6 yrs.	29.2 yrs.	U=819.5	N.S.
Total Pregnancies Ever	2.42	1.95	U=742.5	N.S.
Voluntary Abortions	0.17	0.30	U=865.0	N.S.
Spontaneous Abortions (does not include current pregnancy)	0.71	0.42	U=764.0	N.S.
	Percent	**Percent**	**Chi-Square**	
This Pregnancy was First Ever	33.3%	47.7%	$\chi 2=1.84$	N.S.
			Fisher's Exact Test*	
Ever Had Infertility Treatment	97.6%	100%	p=.488	

* As stated in the Data Analysis section: Fisher's Exact Test is used instead of Chi-Square estimates of probability whenever the expected frequency of any cell in a 2 X 2 table is less than 5. It provides a more precise measure of probability when expected frequencies are small.

all the pregnancies among the ST patients were origially multiple, with the mean number of fetuses conceived 3.6. Other medical data about the multiple gestation will be reported in the Results Section.

An important medical finding of this study was that subjects with a prior history of spontaneous abortion were more likely to spontaeously abort this pregnancy. ST patients who miscarried this pregnancy were 11 times as likely to have a history of prior miscarriage as ST patients with a successful outcome ($\chi 2=6.3$; $p<.02$: Relative Risk Estimate = 11.31; 95% Confidence Interval = 1.23 to 102.72). Among the 34 ST patients with a successful pregnancy outcome, 13 (38.2%) had a history of prior miscarriage. This was in great contrast to the ST patients who miscarried: all but one of these 8 women (87.5%) had a prior history of miscarriage. And this woman did not spontaneously miscarry, but decided to abort the entire pregnancy when she discovered that the remaining fetus had a genetic anomaly.

The association between past and current miscarriage was also found for women in the control group. Seven (70%) of the controls who miscarried had a history of previous miscarriage, compared with 20.6% the pregnant or postpartum controls ($\chi 2=8.70$; $p<.01$).

Infertility treatment.

Although many aspects of reproductive history were not signficantly different among the subject and control groups, their experience as infertility patients was markedly different. As would be expected from a recruitment procedure in which controls were interviewed less than a year after first presenting to an infertility specialist, the controls tended to be in the early phases of infertility treatment. In contrast, all but two of the ST patients conceived the multiple pregnancy while undergoing infertility treatments which usually be undertaken after less aggressive treatments had failed. Thus, controls had conceived after less time on average than ST patients, and were much less likely to have undergone ovulation induction or assisted reproductive therapies.

The mean length of time attempting to conceive for the ST patients was 44.4 months, and the median was 33.5 months; compared with the control mean of 23.9 months, and median of 17 months (Mann-Whitney $U = 619.5$; $p<.01$). The amount of time ST patients had tried to get pregnant ranged from 1 month to 14 years. For controls the range was 5 months to 8 years.

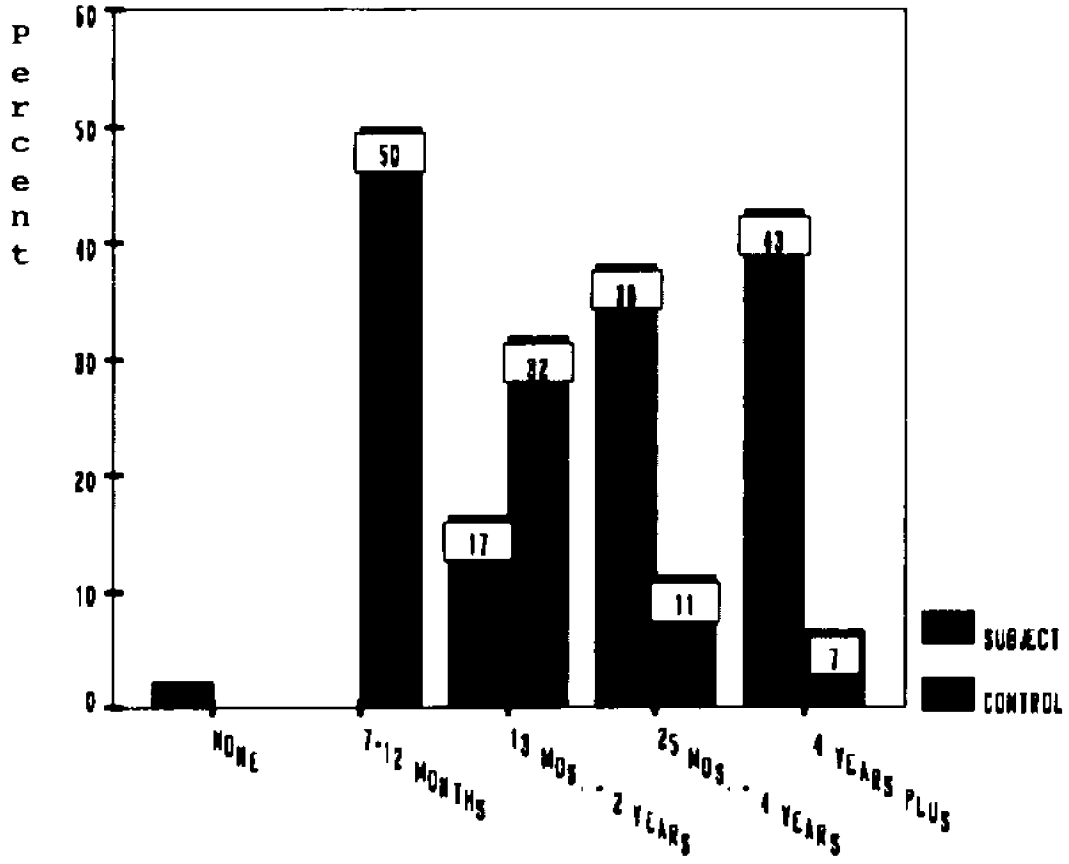
In addition to trying longer to conceive this pregnancy, the ST patients had a significantly longer history as infertility patients: 42.9% of ST patients first consulted a physician about their fertility more than four

years before the interview, while only 6.8% of controls had consulted a physician that long ago ($\chi 2=37.96$; $p<.0001$). (See Figure C).

All but one of the ST patients conceived the multiple pregnancy after infertility treatment. One woman conceived triplets naturally. Another ST patient became pregnant after taking clomiphene citrate to induce ovulation, but the rest of the ST patients conceived after treatments that were expensive, time-consuming, and physically invasive. A total of 59.5% conceived after ovulation induction with human menopausal gonadotropins (hMG - trade name Pergonal) and/or Metrodin, and 35.7% of subjects conceived after assisted reproductive technologies (ART). Of the women undergoing ART, 11 (26.2%) underwent in vitro fertilization (IVF), 3 (7.1%) underwent Gamete intrafallopian transfer (GIFT), and one woman conceived the multiples after zygote intrafallopian transfer (ZIFT). Three of the subjects who became pregnant after ovulation induction were artificially impregnated with donor sperm (AID).

Although all of the control subjects had been recruited because they were seeking infertility evaluation, 45.5% conceived without fertility treatment. Another 25.0% conceived after taking Clomiphene Citrate. The differences between ST patients and Controls in whether or not they needed fertility treatment was highly significant ($\chi 2=21.60$; $p<.0001$). (See Table 3).

Figure C. **LENGTH OF TIME SINCE FIRST PRESENTED TO A PYSICIAN ABOUT INFERTILITY**



Differences in length of time since first consulting a physician about fertility: $\chi 2=37.96$; $p<.0001$.

Note that when performing Chi-Sqare estimate, the categories of "none" and "7-12 months" were combined to prevent empty cells.

Table 3. INFERTILITY EVALUATION & TREATMENT FOR THIS PREGNANCY

Reproductive Characteristic	ST Patients N = 42	Controls N = 44	Chi-Square
Infertility Treatment needed for this Pregnancy	97.6%	54.5%	$\chi 2=21.60$ $p<.0001$
Type of Infertility Treatment Needed for This Pregnancy *			$\chi 2=55.97$ $p<.0001$
No Treatment	2.4%	45.5%	
Clomiphene Citrate	2.4%	25.0%	
Pergonal and/or Metrodin	59.5%	9.1%	
Tubal Surgery	0	9.1%	
Varicocele Correction	0	2.3%	
Invitro Fertilization	26.2%	0	
GIFT or ZIFT	9.5%	0	
Donor Insemination**	7.1%	0	
Other	0	9.1%	

* To perform Chi-Square, categories were collapsed. All ART categories were combined, and surgery and DI categories were combined with "Other."

**Note that all DI patients also received Pergonal or Metrodin. Therefore, percentiles do not add up to 100%.

When asked about which fertiltiy tests and treatments they had ever undergone, ST patients were significantly more likely to have many of standard tests of fertility. (See Table 4 for a summary of past infertility treatment.)

Table 4. INFERTILITY TESTS AND TREATMENTS EVER

	ST Patients	Controls	Chi-Square	
Blood Tests	92.9%	77.3%	$\chi 2 = 4.07$	$p < .05$
Basal Body Temperature	88.1%	97.7%	$\chi 2 = 3.07$	N.S.
Post-Coital Test	71.4%	75.0%	$\chi 2 = 0.13$	N.S.
Semen Exam	92.9%	70.5%	$\chi 2 = 7.12$	$p < .01$
Hysterosalpingogram	81.0%	52.3%	$\chi 2 = 7.91$	$p < .01$
Endometrial Biopsy	38.1%	50.0%	$\chi 2 = 1.23$	N.S.
Clomid or Seraphene	81.0%	50.0%	$\chi 2 = 9.06$	$p < .01$
Pergonal	92.9%	6.8%	$\chi 2 = 63.66$	$p < .0001$
Tubal Surgery	26.2%	13.6%	$\chi 2 = 2.13$	N.S.
Varicocele Correction	11.9%	2.3%	$\chi 2 = 3.07$	N.S.
Artificial Insemination*	59.5%	4.5%	$\chi 2 = 30.23$	$p < .0001$
In Vitro Fertilization	33.3%	0	$\chi 2 = 17.51$	$p < .0001$
GIFT	9.5%	0	$\chi 2 = 4.39$	$p < .05$
Other(includes Laparoscopy)	61.9%	45.5%	$\chi 2 = 2.34$	N.S.

* Includes AI with husband's sperm.

Chapter IV: Part II - Depressive Episodes

"Successful" and "Unsuccessful" subjects.

Note: Throughout the results section the 34 selective termination patients who were pregnant or who had given birth to healthy babies at the time of the interview will be referred to as "successful" selective termination (SST) patients. The 34 controls who were pregnant or had given birth will be referred to as "successful" (S) controls. The 8 selective termination patients who spontaneously aborted the entire pregnancy subsequent to the reduction, or who had to terminate the remaining fetuses for medical reasons, such as genetic abnormalities, will be referred to as "unsuccessful" selective termination (UST) patients. The 10 controls who spontaneously aborted the entire pregnancy will be referred to as "unsuccessful" (U) controls. The terms "successful" and "unsuccessful" refer only to pregnancy outcome, and have no implication with regard to mental health status or any other factors.

Major depression: Subjects versus controls.

There was no support for the main study hypothesis that selective termination patients would have higher rates of depression than controls. Depressive episodes were evaluated in 5 ways: on none of these did the the 34 SST patients and 34 S controls differ significantly. For

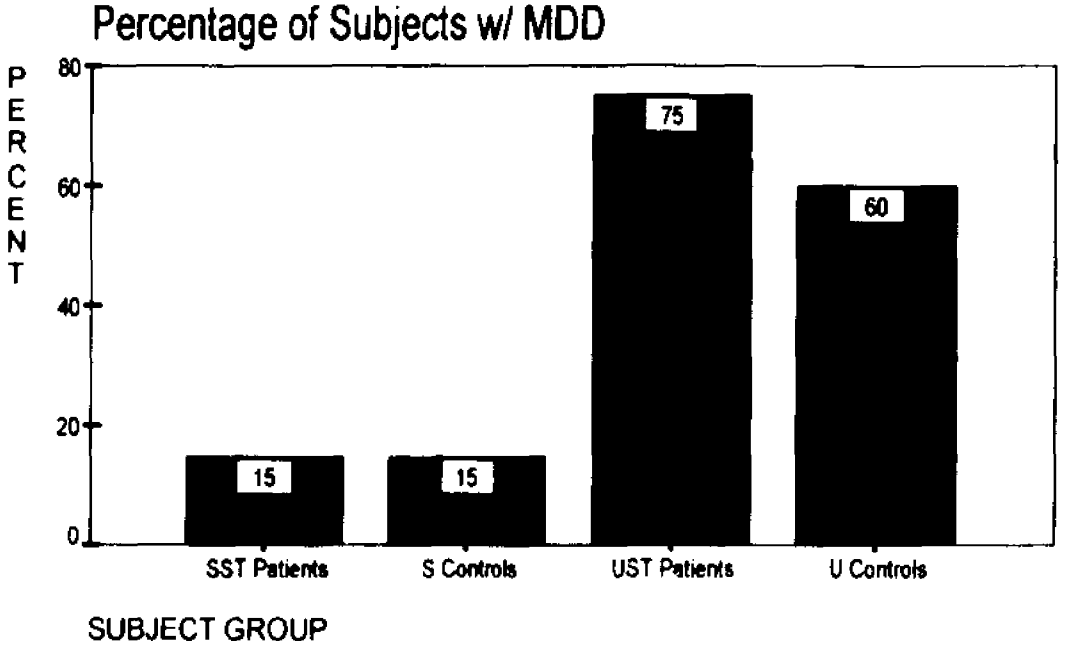
example, exactly the same number and percentage of SST patients and S controls -- 14.7% -- reported depressive episodes which met criteria for Major Depressive Disorder (MDD) during the nine months prior to the interview.

As hypothesized, there were also no significant differences on the depression measures between the 8 UST patients and the 10 U controls. All of the subjects who spontaneously aborted their entire pregnancies reported depressive episodes of at least a week. A total of 37.5% of UST patients were currently depressed, compared with 40.0% of U controls ($\chi 2$=.01; N.S.).

Although selective termination was not associated with an increase risk for depressive episode, spontaneous abortion of the entire pregnancy was associated with significantly higher rates of depression on every measure of depression. As hypothesized, the 8 UST patients were significantly more likely to report depressions than the 34 SST patients. Compared with the SST patients, the UST patients were more than 17 times as likely to report depressive episodes which met criteria for MDD (Relative risk ratio confidence interval=2.71 to 111.84). Three quarters of the UST patients reported MDD, compared with 14.7% of SST patients (Fisher's Exact Test, p=.002; λ=.36).

The association between depression and miscarriage was also found for controls. The 10 U controls were more than 8 times as likely to report MDD as the 34 S controls (Fisher's Exact Test, p=.008; λ=.18). (Figure D and Table 5 give the results for comparisons of Major Depressive Disorder (MDD)).

Figure D.



Clinically significant depressive episodes.

MDD was the most stringent measure of depression used. The findings however, were similar when rates of less severe depressive episdodes were calculated, such as those judged to be clinically significant. This was defined as a period of depression lasting at least two weeks, and characterized by behavioral impairment and/or help-seeking.

Table 5: Comparisons of Subjects who met DSM-III R Criteria for Major Depressive Disorder occurring within 9 Months of the Interview*

	SST Patients N=34	S Controls N=34	UST Patients N=8	U Controls N=10
Subjects Who Met Criteria For MDD	14.7%(N=5)	14.7%(N=5)	75.0%(N=6)	60.0%(N=6)

Comparison Grouping	Chi-Square	$\chi 2$ Significance or Fisher's Exact Test	Lambda	Risk Ratio (Case Control)
SST Patients vs. S Controls	$\chi 2=0$	N.S.	$\lambda=0$	1.0
UST Patients vs. U Controls	$\chi 2=.45$	N.S.	$\lambda=0$	.5
SST Patients vs. UST Patients	$\chi 2=12.18$	Fisher's p=.002	$\lambda=.36$	17.40
S Controls vs. U Controls	$\chi 2=8.45$	Fisher's p=.008	$\lambda=.18$	8.70

*Note: For the purpose of these comparisons fetal loss through miscarriage or selective termination has not been considered "uncomplicated bereavement".

In terms of clinically severe depressions, there were no significant differences associated with whether or not a subject underwent selective termination. However, as with MDD, having a negative pregnancy outcome put women at risk for clincial depression. All of the UST patients (N=8) reported clinically severe episodes of depression occurring in the nine months prior to the interview, compared with 26.5% (N=9) of the SST patients (Fisher's Exact Test, p=.0002; λ=.47)

Eighty percent (N=8) of the U controls reported episodes of clinically severe depression, compared with 26.5% (N=9) of the S controls (Fisher's Exact Test, p=.007; λ=.35). This meant that relative risk of clinical depression was more than 11 times as great among controls who miscarried. (See Figure E and Table 6).

Figure E.

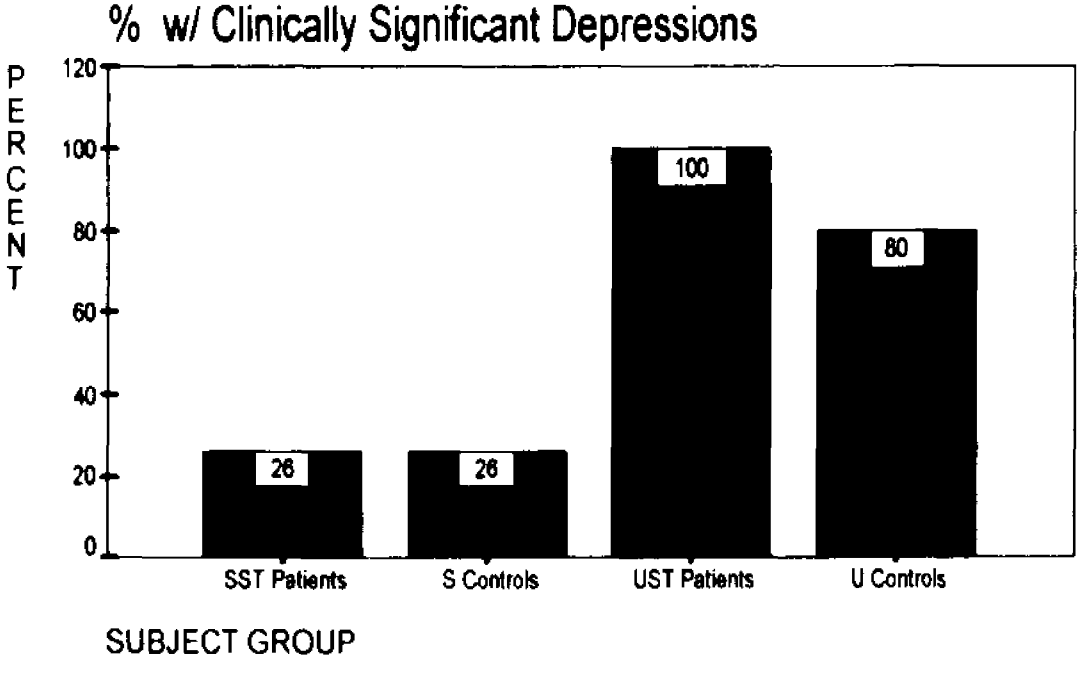


Table 6: Comparisons of Subjects who reported Clinically Significant Episodes of Depression occurring within 9 Months of the Interview*

	SST Patients N=34	S Controls N=34	UST Patients N=8	U Controls N=10
Subjects Who Met Criteria For Clinical Depression	26.5% (N=9)	26.5% (N=9)	100% (N=8)	80.0% (N=8)

Comparison Grouping	Chi-Square	$\chi 2$ Significance or Fisher's Exact Test	Lambda	Risk Ratio (Case Control)
SST Patients vs. S Controls	$\chi 2=0$	N.S.	$\lambda=0$	1.0
UST Patients vs. U Controls	$\chi 2=1.80$	N.S.	$\lambda=0$	**
SST Patients vs. UST Patients	$\chi 2=14.53$	Fisher's p=.0002	$\lambda=.47$	**
S Controls vs. U Controls	$\chi 2=9.34$	Fisher's p=.007	$\lambda=.35$	11.11

*Note: Defined as depressive episodes lasting at least 2 weeks and resulting in behavioral impairment and/or help-seeking behavior.
** Case/control risk ratio cannot be calculated

Depressive episodes of at least one week.

A similar pattern was found for subjects who reported being depressed for at least one week during the nine months prior to the interview. Over a third of SST patients (38.2%) and S controls (35.3%) reported having been depressed for at least a week, compared with all of the UST patients and U controls. The difference between the rate of depressed mood among UST patients and SST patients was higly significant (Fisher's Exact Test, $p=.003$; $\lambda=.38$). Between U controls and S controls the differences were also significant ($\chi 2=12.94$; $p<.001$; $\lambda=.45$). (See Figure F and Table 7).

Figure F.

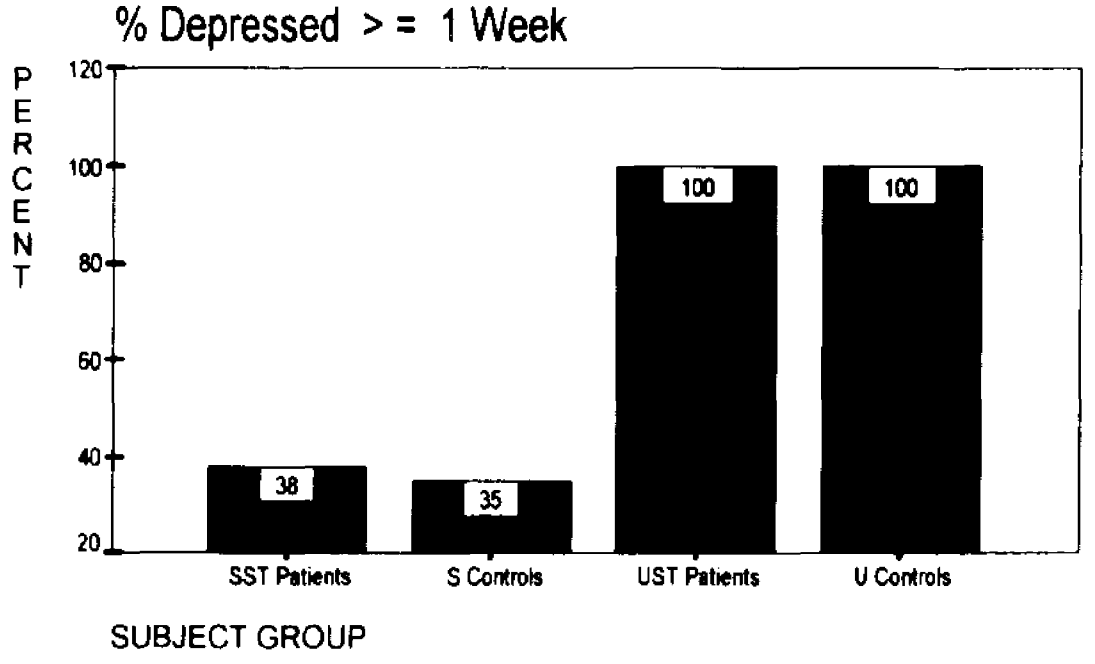


Table 7: Comparisons of Subjects who reported being Depressed for At Least One Week within 9 Months of the Interview

	SST Patients N=34	S Controls N=34	UST Patients N=8	U Controls N=10
Subjects Who Were Depressed For One or More Weeks	38.2% (N=13)	35.3% (N=12)	100% (N=8)	100% (N=10)

Comparison Grouping	Chi-Square	$\chi 2$ Significance or Fisher's Exact Test	Lambda	Risk Ratio (Case Control)
SST Patients vs. S Controls	$\chi 2=.06$	N.S.	$\lambda=0$	.88
UST Patients vs. U Controls	*	*	*	**
SST Patients vs. UST Patients	$\chi 2=9.88$	Fisher's p=.003	$\lambda=.38$	**
S Controls vs. U Controls	$\chi 2=12.94$	p<.001	$\lambda=.45$	**

* No statistics possible - 100% of both groups were depressed.
** Case/control risk ratio cannot be calculated.

Subjects who had aborted their pregnancies were also more likely to be currently depressed at the time of the interview. (See Table 8). Over a third (37.5%; N=3) of the UST patients reported an ongoing episode of depression compared with 8.8% (N=3) of the SST patients (Chi-Square = 4.35; $p<.05$). Forty percent (N=4) of the U controls were depressed when interviewed, while none of the S controls reported being currently depressed (Chi-Square=14.96; $p<.001$).

Severity of depressive episodes.

Many analyses were made to see whether the depressive episodes of the four groups differed from one another, especially whether the depressions of the ST patients were experienced as more severe. To look at this, a global measure of depression severity was calculated, which added up the number and severity of symptoms, and then added an adjusted measure for the length of each depression (Appendix C). When depressive epsisodes were ranked in order of severity, there were no differences among the groups of depressed subjects (Kruskal-Wallis $\chi 2 = 2.00$; N.S.). (See Table 9).

Table 8: Comparisons of Subjects who were Depressed at the time of the Interview

	SST Patients N=34	S Controls N=34	UST Patients N=8	U Controls N=10
Subjects Who Were Currently Depressed	8.8% (N=3	0% (N=0)	37.5% (N=3)	40.0% (N=4)

Comparison Grouping	Chi-Square	$\chi 2$ Significance	Lambda	Risk Ratio (Case Control)
SST Patients vs. S Controls	$\chi 2=3.14$	N.S.	$\lambda=0$	**
UST Patients vs. U Controls	$\chi 2=.01$	N.S.	$\lambda=0$	1.11
SST Patients vs. UST Patients	$\chi 2=4.35$	$p<.05$	$\lambda=0$	6.20
S Controls vs. U Controls	$\chi 2=14.96$	$p<.001$	$\lambda=0$	**

** Case/control risk ratio cannot be calculated.

Table 9. Severity of Depression

Kruskal-Wallis 1-Way ANOVA $\chi 2=2.00$, D.F.=3 ; p=.573

Subject Group	Number Depressed	Mean Rank of Depression Severity
SST Patients	N=13	20.88
S Controls	N=12	18.67
UST Patients	N=8	24.94
U Controls	N=10	25.10

(The higher the rank,the more severe the average depression)

Nonparametric analysis of variance measures were also conducted comparing the four subject groups on the average number of depressive symptoms, severity of reported symptoms, and the number of weeks each depressive episode lasted. No significant between-group differences were found on these ways of measuring the depression.

Using Chi-Square calculations to compare individual depressive symptoms, no significant differences were found between the four subject groups. For example, the 13 SST patients who reported depressions did not rate their episodes as more severe or more persistent than the 12 depressed S controls.

Although between-group differences did not reach significance on any individual symptom measures, on a few items it seemed likely that larger sample sizes would have led to significant findings. Specifically, 38.5% of depressed SST patients rated their feelings of guilt and self-blame during the depression as "severe", compared with

only 8.3% of S controls ($\chi 2=2.34$; N.S.). Also, 61.5% of depressed SST patients said that the episode was the worst depression they had ever had, compared with 33.3% of the S controls ($\chi 2=1.99$; N.S.).

Reasons for depression.

Although the SST subjects and S controls did not differ in rates of depression, or in the type and severity of symptoms that they reported, the reasons for their depressions differed. Negative mood changes were attributed to the selective termination by many of the women in the study. Among the 13 SST patients who reported depressions, 61.5% (N=8) attributed the episode to distress at the diagnosis of multiple fetuses, anxiety about deciding to terminate one or more of the fetuses, and/or a reaction to the emotional pain of the termination itself.

Four of the 5 SST patients whose depressive episodes met criteria for MDD said that their depression was related to the multiple pregnancy and the termination. All 5 of the SST patients who met criteria for MDD also reported moderate to severe guilt during the depression.

One other SST patient reported an ongoing chronic depression, although it did not meet criteria for MDD. Two SST patients attributed their depressive episodes to pregnancy complications such as bedrest, and one woman said that she had been depressed about her previous infertility.

All but one of the UST patients (87.5%) attributed their depression to losing the pregnancy. That woman reported having been depressed after her miscarriage, but said that she experienced an even more severe episode of depression a few months later when she was having marital difficulties.

Eight of the U controls (80.0%) attributed their depressive episode to their miscarriage. Also, 2 (16.7%) of the S controls reported that their depressions were caused by miscarriages which had occurred within 9 months of the interview, shortly before their current pregnancies. This further strengthened the finding that perinatal loss puts women at risk for depressive disorder. (See Table 10).

Table 10. **Reported Reasons for Depression**

	SST Patients (N=13)	UST Patients (N=8)	S Controls (N=12)	U Controls (N=10)
The ST and/or diagnosis of multiple fetuses	N=8	0	NA	NA
Spontaneous Abortion	NA	N=7	N=2	N=8
Chronic depression	N=2	0	0	0
Prior infertility	N=1	0	N=2	0
Marital or Family Problems	0	N=1	N=1	N=2
Postpartum Depression	0	NA	N=2	NA
School or Work Related	0	0	N=2	0
Bedrest or physical discomfort during pregnancy	N=2	0	N=3	0

Factors associated with depression.

One of the goals of the study was to assess possible risk factors for depression. It was hypothesized that religious beliefs, infertility treatment and marital satisfaction would be related to susceptibility to depression after selective termination.

Being Catholic and/or highly religious was expected to be associated with increased rates of depression among SST patients, but this was not the case. Although 54.5% (N=6) of the Catholic SST patients reported having been depressed for at least a week, compared with 36.4% of the Protestants and 27.3% of the Jewish patients, this proportion did not approach significance ($\chi 2=2.43$; N.S.). The severity of the depressions reported by SST patients was also unrelated to religious affiliation (Kruskal-Wallis 1-Way ANOVA = 1.52; N.S.).

Contrary to study hypotheses, how religious SST patients considered themselves had no bearing whether or not they reported depressive episodes ($\chi 2=3.96$; N.S.). In fact, none of the SST patients who considered themselves "very religious" reported being depressed for as long as a week.

An inverse relationship was hypothesized between marital satisfaction and depression. Women who were happier in their marriages were expected to be at lower risk for depression. However, no association was found between marital satisfaction and depression for any of the four

subject groups. For example, the 88.2% of SST patients who reported that they were "very happy" in their marriage were as likely to report depressions as the SST patients who gave their marital satisfaction a lower rating ($\chi 2=.27$; N.S.). With respect to this study hypothesis, however, it is important to keep in mind that there was little variability on the measure: the majority of subjects in each group reported that they were "very happy" in their marriage.

A longer duration of infertility treatment was expected to put women at risk for depression after selective termination. But no relationships were found between infertility history and depression. In SST patients, the rate of depression was not linked with the number of months trying to conceive (Mann-Whitney U=94.0; N.S.), with the length of time since first consulting a physician about fertility ($\chi 2=.43$; N.S.), or with the type of infertility treatment undergone. For example, the SST patients who conceived via ovulation induction were no more likely to report depressions than the SST patients who conceived via ART therapies ($\chi 2=.94$; N.S.).

There was also no correlation between infertility treatment and the other study cohorts. For example, among the S controls, half had needed infertility treatment and half had conceived without medical intervention: the same percentage of these two subsets reported depressive episodes ($\chi 2=0$; N.S.).

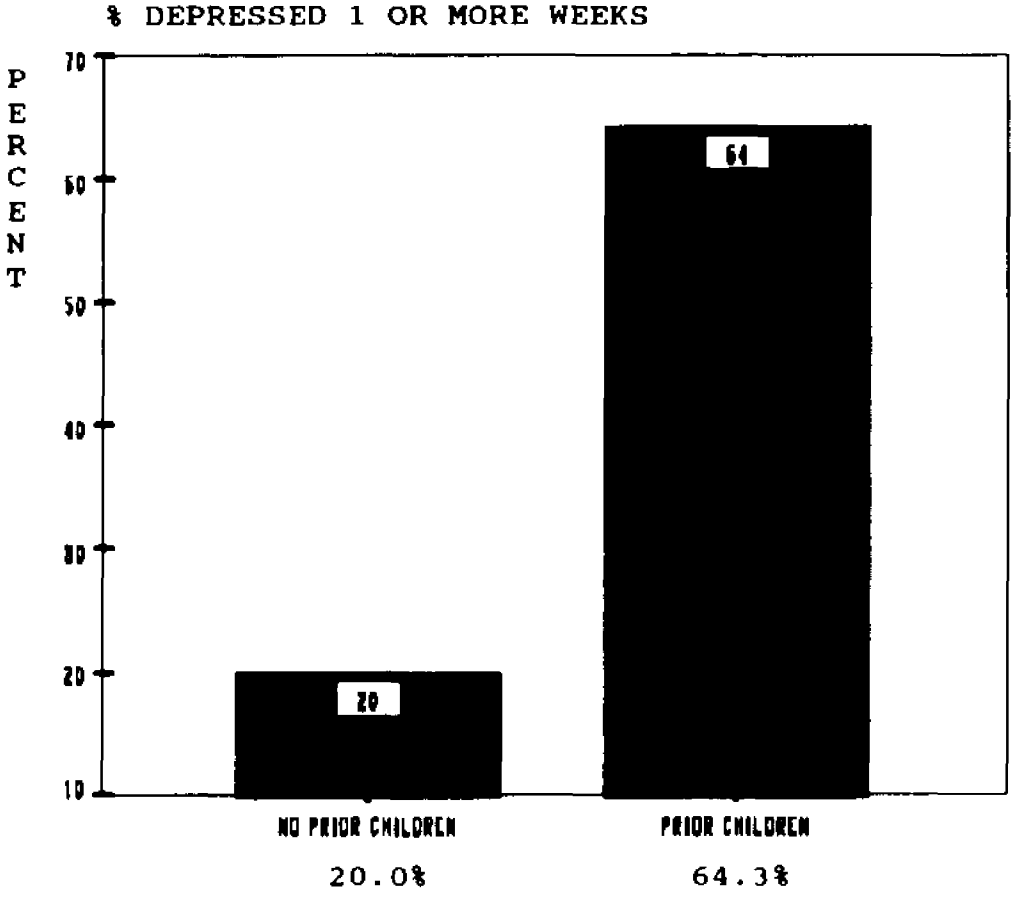
Most other reproductive history variables were uncorrelated with depression measures. Repeating analyses for each of the four subject groups, no association was found between depression and the number of previous pregnancies, a history of prior miscarriage, or a history of prior elective abortion. Among SST patients, 38.5% of the women who had never before been pregnant reported depressive episodes, compared with 38.1% of those that had a history of prior pregnancy ($\chi 2$=.001; N.S.). The 13 SST patients with a history of prior miscarriage were no more likely than other SST patients to report depression ($\chi 2$=.001; N.S.). A history of elective abortion was also unrelated to depression in SST patients ($\chi 2$=.27; N.S.).

Risk factors: Prior children.

An unanticipated association was discovered between prior children and response to the selective termination. The SST patients who already had children when they conceived the multiple pregnancy were significantly more likely to report a depressive epsiode than childless SST patients. Nine (64.3%) of the 14 SST patients who already had living children when they conceived the multiple pregnancy reported depressions lasting at least a week, compared with only 4 (20.0%) of the 20 SST patients with no prior children ($\chi 2$= 6.84; $p<.01$; λ=.31). (See Figure G.)

Figure G. Risk Factors: Prior Children

Percentages of reported depressions for previously childless SST patients compared with those who already had children before the multifetal pregnancy.



$\chi 2=6.84$; $p<.01$; $\lambda=.31$; Relative Risk=7.20

In other words, women with prior children were more than 7 times as likely to report depressive episodes (Relative risk C.I.=1.53 to 33.85). This association just missed reaching signficicance when the same analysis was conducted for rates of MDD ($\chi 2$= 3.65; p=.056), although 4 of the 5 women who met criteria for MDD already had birth children.

No association between prior children and depression was found among the S controls ($\chi 2$=1.57; N.S.).

Risk factors: Time since selective termination.

There was indirect evidence for the main study hypothesis that selective termination is experienced as a psychological trauma associated with depressive reactions: the more rece t the selective termination, the more likely the patient was to report a depression. Among the 34 SST patients the more recent the pregnancy reduction, the more likely the patient was to report having been depressed at least a week (Mann-Whitney U=80.5; p<.05). Similarly, the more recent the reduction, the more likely the SST patient was to meet criteria for MDD (Mann-Whitney U=30.0; p<.05).

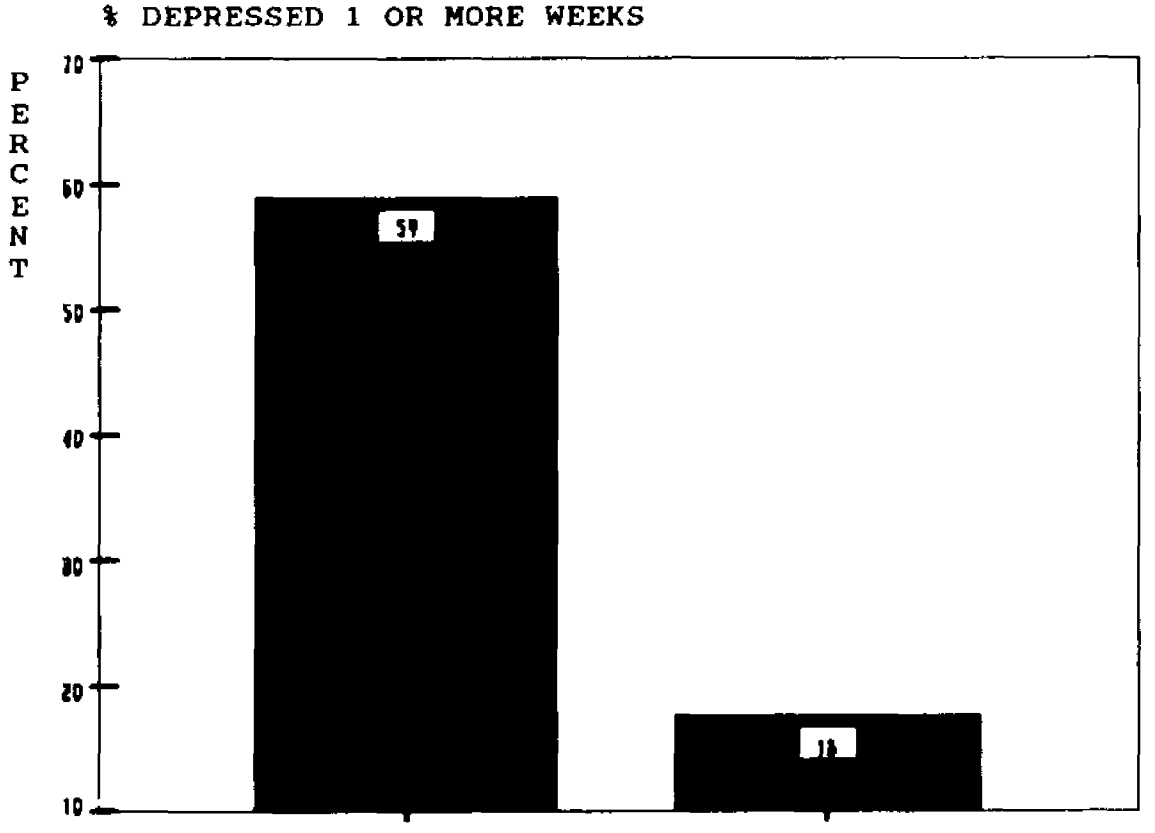
Additionally, severity of the depressive episodes was inversely correlated with length of time between the selective termination and interview. The more recent the selective termination, the more severe the depression among the 13 SST patients who reported depressions (Pearson's r = -.60; p<.05).

A related finding was an association between pregnancy and depression. Ten of the 17 SST patients who were pregnant at the time of the interview reported having been depressed for at least a week, compared with 3 of the 17 postpartum SST women ($\chi 2 = 6.10$; $p < .02$; $\lambda = .23$). In other words, pregnant ST patients were more than 6 times as likely to report a depressive episode as their postpartum peers (Relative Risk Confidence Interval=1.38 to 32.28). This is not to say that the pregnant patients were more likely to be currently depressed -- they were not -- but more likely to remember a depression occurring sometime during the nine months before the interview. (See Figure H).

The association between pregnancy and depression was not found for the S controls. Thirty percent of the postpartum controls reported depressive episodes, compared with 37.5% of the pregnant controls (Fisher's Exact Test, p=1.0).

Figure H. **Risk Factor: Pregnancy**

Percentage of Pregnant SST Patients and Postpartum SST Patients Who Reported Depressive Episodes.



$\chi 2=6.10$; $p<.02$; $\lambda=.23$

Chapter IV: Part III - Psychiatric Symptoms

Brief Symptom Inventory comparisons.

To test the main study hypotheses, one-way analyses of variance were conducted comparing the four study cohorts on each of the 12 indices of the Brief Symptom Inventory (BSI). Significant differences were found on 4 of the symptom indices; Depression, Interpersonal Sensitivity, Paranoid Ideation, and Psychoticism (See Table 11 and Table 12). Post-hoc analyses showed that, in each case, these significant differences were accounted for by the higher symptom levels of subjects who miscarried and lower symptom levels of subjects with a successful pregnancy outcome.

Each subject was also screened for possible psychiatric disorder by whether or not they met published criteria for clinical "caseness" (Derogatis, 1992; p.36). There were no significant differences among the four subject groups in terms of percentage of positive cases ($\chi 2=3.22$; N.S.). A total of 20.6% of SST patients were "cases", compared with 37.5% of UST patients, but this difference was not statistically significant. (See Figure I for a summary of these comparisons).

Thus, the results of BSI comparisons do not support the main study hypothesis. The 34 SST patients were no more symptomatic than the 34 S controls.

Table 11. BRIEF SYMPTOM INVENTORY COMPARISONS -- Significant Findings Means, Standard Deviations, and One-Way ANOVA Measures

Symptom	SST Patient N=34		S Control N=34		UST Patient N=8		U Control N=10		ANOVA df=3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Depression**	**.32**	.57	**.22**	.32	**.75**	.83	**.77**	.89	F=3.76	**p<.02**
Interpersonal Sensitivity*	**.18**	.26	**.29**	.45	**.44**	.61	**.58**	.60	F=2.99	**p<.05**
Paranoid Ideation***	**.18**	.34	**.22**	.37	**.28**	.26	**.60**	.60	F=3.40	**p<.05**
Psychoticism****	**.14**	.33	**.09**	.16	.33	.43	**.38**	.45	F=3.44	**p<.05**

Post-Hoc Analyses -- Least Significant Difference Test at p<.05

* For Depressive Symptoms: Significant differences found between SST patients and U controls, between S controls and U controls, and between S controls and UST patients.

** For Interpersonal Sensitivity: Significant differences found between SST patients and U controls.

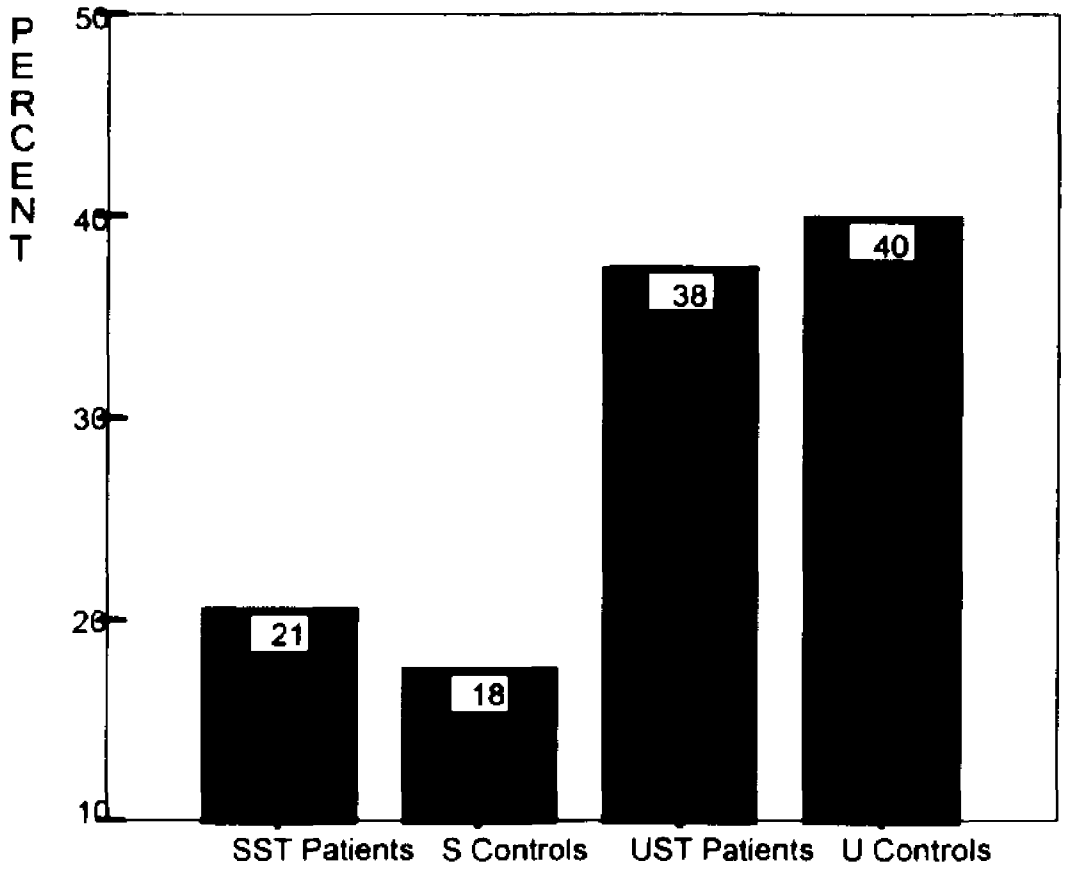
*** For Paranoid Ideation: Significant differences found between SST patients and U controls, and between S controls and U controls.

**** For Psychoticism: Significant differences found between SST patients and U controls, S controls and U controls, and between S controls and UST patients.

Table 12. BRIEF SYMPTOM INVENTORY COMPARISONS
Means, Standard Deviations, and One-Way ANOVA Measures

Symptoms	SST Patient N=34		S Control N=34		UST Patient N=8		U Control N=10		ANOVA df=3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Somatization	.31	.41	.38	.50	.16	.30	.23	.28	F=.72	N.S.
Obsessive-Compulsive	.54	.56	.59	.66	.35	.38	.68	.82	F=.54	N.S.
Anxiety	.49	.61	.39	.46	.56	.43	.62	.75	F=.55	N.S.
Hostility	.42	.42	.36	.39	.63	.20	.60	.51	F=1.56	N.S.
Phobic Anxiety	.11	.22	.12	.37	.18	.35	.12	.22	F=.08	N.S.
Global Severity Index	.32	.33	.32	.31	.43	.34	.51	.50	F=1.14	N.S.
Positive Symptom Distress Index	1.43	.44	1.51	.42	1.53	.49	1.54	.45	F=.29	N.S.
Positive Symptom Total	10.35	8.61	11.12	9.20	13.63	7.17	15.90	12.72	F=1.11	N.S.

Figure I. **Percentage of Subjects who meet BSI criteria for "Caseness"**



$\chi 2=3.22$; N.S.

As expected, UST patients and U controls also did not significantly differ on BSI measures. There was some support for the hypothesis that miscarrying women fared worse than those with a successful pregnancy outcome. However, these findings were not as strong and widespread as for depressive disorder. According to post-hoc analyses of ANOVA results, none of the significant differences in symptom levels were accounted for by the gap between UST patient averages and lower SST patient averages.

Although UST patients were not significantly more symptomatic than SST patients, it must be kept in mind that the numbers of miscarrying subjects was quite small and thus very large differences would have been needed to reach significance. On all 12 BSI indices the ST patients who miscarried reported higher mean symptom levels than successful patients, and were also elevated in comparison with published norms for community women (Derogatis, 1982; 1992). (Figures J, K and L illustrate between-group differences on the 9 BSI symptom clusters and 3 global indices).

It is important to note that subjects were asked to report psychiatric symptoms occurring only during the week in which the interview was conducted, unlike measures of depression which were retrospective as well as current.

Figure J. Comparisons of BSI Symptom Means

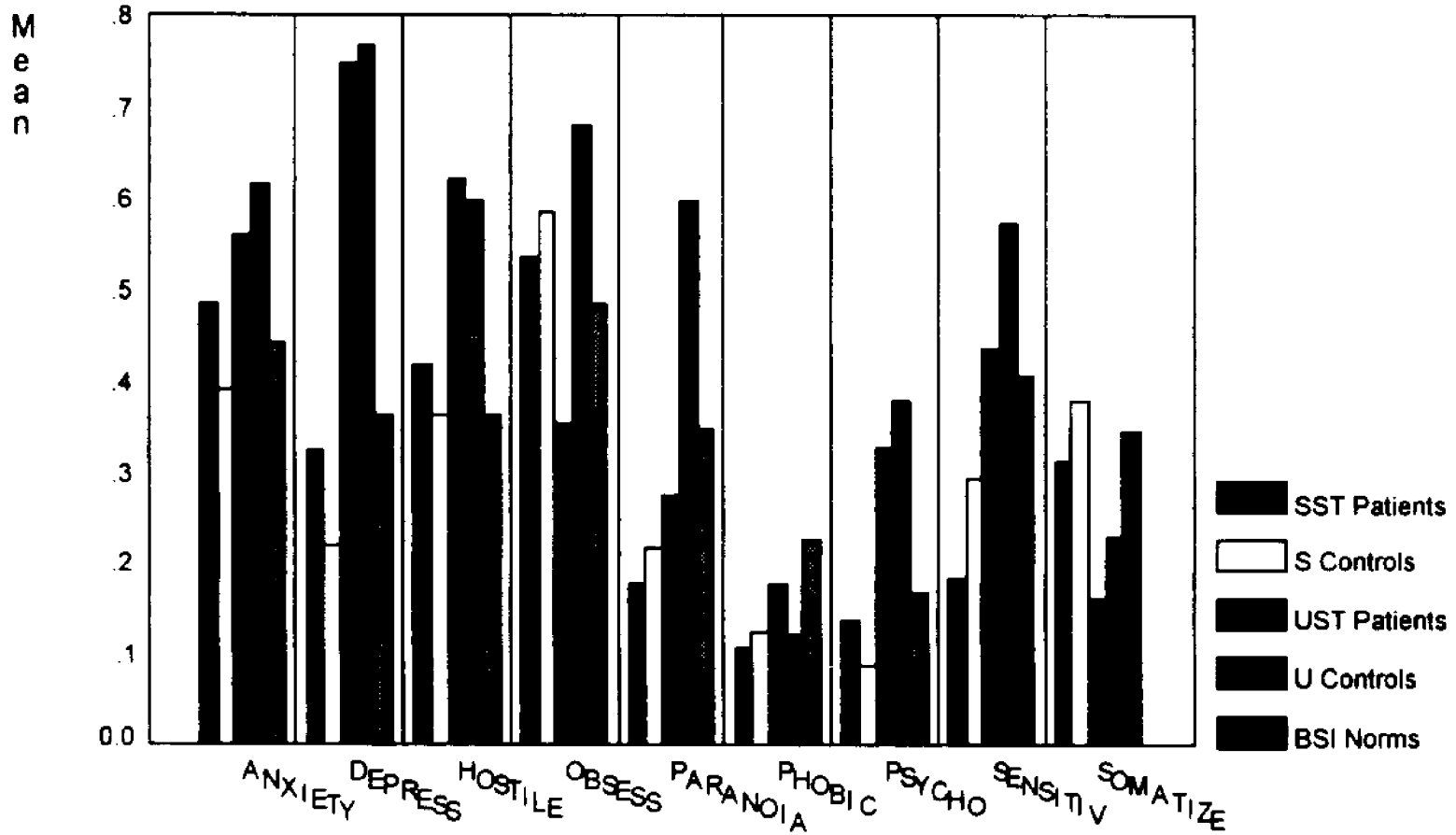


Figure K. Global Symptom Index and Positive Symptom Distress Index

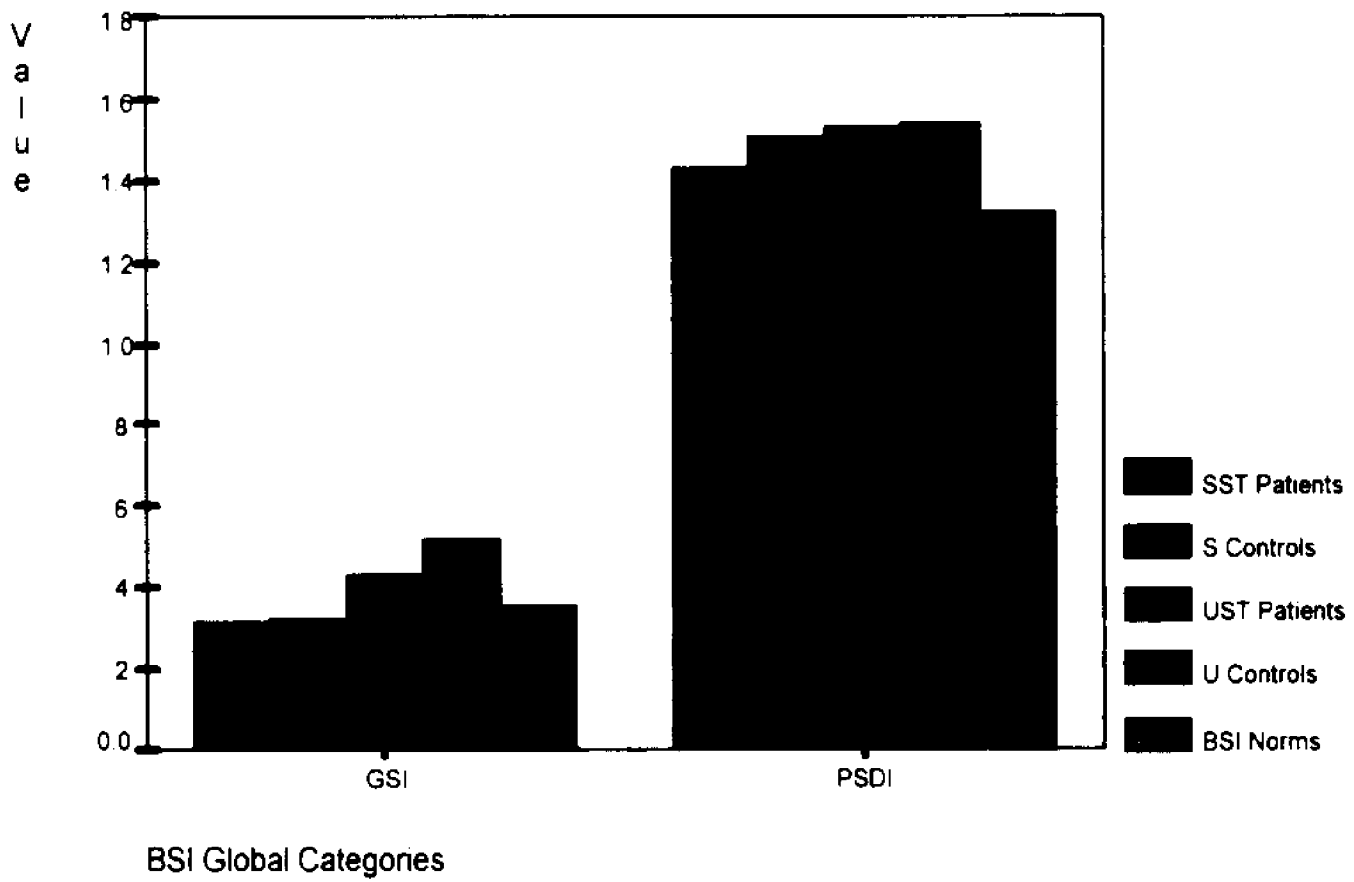
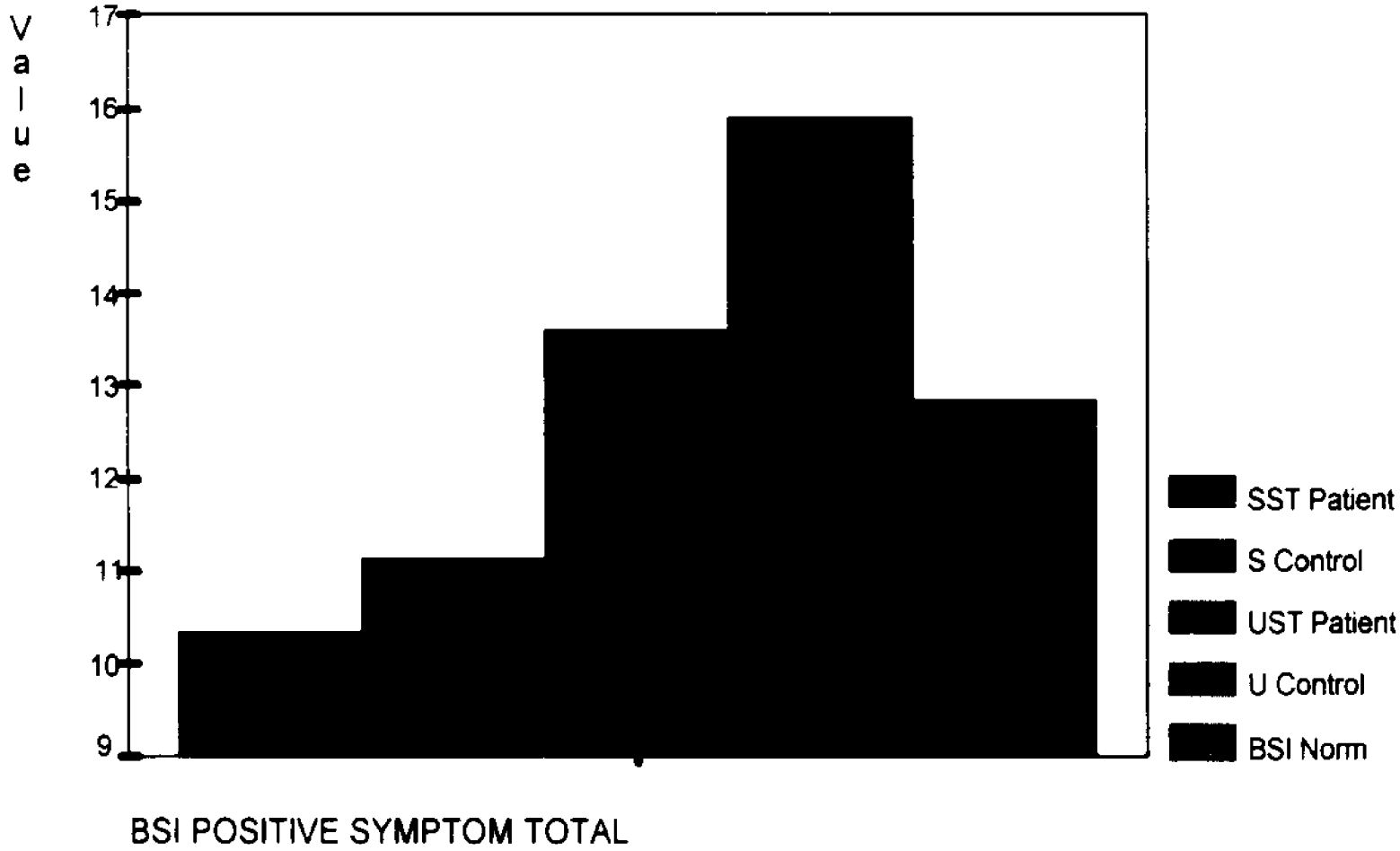


Figure L. Positive Symptom Total



Thus several months had often elapsed between miscarriages and interviews -- symptom levels which were initially high may have begun to return to normal. Similarly, because the selective termination had taken place up to a year before the interview, it is understandable that the medical procedure might no longer be associated with high symptom levels.

Risk factors for higher symptom levels.

As with depressive disorder, the demographic factors which were hypothesized to correlate with increased symptomatology among SST patients were religion, length of infertility treatment, and marital satisfaction. Of these variables, only marital satisfaction was significantly correlated with BSI variables. On the indices of Hostility, Paranoid Ideation, and on the Global Severity Index and Postive Symptom Total, SST patients who were less satisfied in their marriages reported higher symptom levels. (See Table 13).

Unlike the findings for depressive episodes, pregnancy status and previous children were not established as risk factors for current psychiatric symptomatology. Whether SST patients were pregnant or postpartum at the interview had no bearing on whether they met criteria for BSI psychiatric "caseness": 23.5% of pregnant SST patients reported high symptom levels, versus 17.6% of postpartum SST patients

Table 13.

Hypothesized Risk Factors and Brief Symptom Inventory Indices in SST Patients

	Marital Satisfaction	Length of Infertility	Religion
	(Pearson Correlations)		(ANOVA)
Anxiety	r= -.21	r= -.05	F= .70
Depression	r= -.24	r= .06	F=1.14
Hostility	**r= -.55*** **	r= -.18	F= .84
Interpersonal Sensitivity	r= -.13	r= -.26	F= .28
Obsessive-Compulsive	r= -.17	r= -.19	F= .05
Paranoid Ideation	**r= -.59*** **	r= -.12	F= .31
Phobic Anxiety	r= -.20	r= .02	F=3.01
Psychoticism	**r= -.37***	r= .17	F= .63
Somatization	r= -.21	r= .00	F= .43
Global Severity Index	**r= -.38***	r= -.07	F= .74
Positive Symptom Distress Index	r= -.04	r= .05	F= 2.62
Positive Symptom Total	**r= -.46****	r= -.17	F=.41

***p<.05; **p<.01; ***p<.001**

Marital Satisfaction and Length of Infertility comparisons conducted for all SST Patients (N=34). Religion comparisons conducted only for Catholic, Jewish, and Protestant SST patients (N=33).

($\chi 2$=.18; N.S.). SST patients with prior children were no more likely to reach psychiatric "caseness" than the SST patients without prior children ($\chi 2$=.01; N.S.).

As with depressive disorder, significant associations were found between the length of time since the pregnancy reduction and BSI levels. For SST patients, the length of time between the reduction and interview was inversely correlated with BSI symptom clusters of Phobic Anxiety, Psychoticism, Somatization, the Positive Symptom Total and the Global Severity Index. (See Table 14).

Table 14. Length of Time Since Selective Termination and BSI Symptoms for SST Patients (N=34).

Anxiety	r=-.33	p=.059
Depression	r=-.32	p=.064
Hostility	r=-.27	N.S.
Interpersonal Sensitivity	r=-.25	N.S.
Obsessive-Compulsive	r=-.19	N.S.
Paranoid Ideation	r= .04	N.S.
Phobic Anxiety	r=-.38	p<.05
Psychoticism	r=-.35	p<.05
Somatization	r=-.34	p<.05
Global Severity Index	r=-.39	p<.05
Positive Symptom Distress Index	r=-.17	N.S.
Positive Symtom Total	r=-.37	p<.05

Chapter IV: Part IV - Reactions to Selective Termination

Descriptive and qualitative results.

The following results section focuses specifically on the selective termination subjects and describes their experiences before, during and after the multifetal reduction. It includes both quantifiable and qualitative data, including quotes from audio-taped portions of the interviews. Because no comprehensive study of women's reactions to selective termination has yet been published, this pilot study describes in great detail women's thoughts and feelings about the multifetal pregnancy and the reduction.

The diagnosis of multiples.

Shock was the most common initial reaction to news of the multiple pregnancy. Stunned disbelief, and happiness at the achievement of pregnancy, was usually followed by distress at the implications of trying to carry multiples. The six women (14.3%) in the sample who had never before been pregnant were the most surprised about the multiple fetuses. As one woman put it:

> "It wasn't real. It was to much to absorb.... We were just really happy that there was one. And the fact that there were four was just really too complicated to grasp."

The mean number of fetuses conceived by the ST patients was 3.6, with 19 sets of triplets (45.2%), 14 sets of

quadruplets (33.3%), 6 sets of quintuplets (14.3%) and one set of sextuplets. Because all but one of the ST patients were undergoing infertility treatment, the possibility of conception was carefully monitored, and the multiple fetuses were diagnosed by ultra-sound very early in the pregnancy, usually between five and six weeks after the woman's last menstrual period (reported mean = 5.8 weeks).

Many women were not at first aware of the physical dangers of higher order multiples. For example, one woman, whose doctor looked at the sonogram screen and told her "You hit the lottery", says she was "thrilled to death" that she was carrying six fetuses.

Other women, who were more informed about the potential physical problems, or more worried about practical caretaking concerns, reported immediate and marked distress about the news. Four women in the sample -- three nurses and a lawyer who had worked on obstetrical malpractice suits -- were all too aware of the risks and realities of premature birth, and their reaction was shaped by this knowledge. One nurse said that her knowledge made her much more anxious than her husband:

> "I work in a delivery room. So I see babies that are born premature and how small they are. You know, on respirators and all that. My husband didn't understand why I was so upset [at the news of triplets]. He'd never seen a two pound baby."

Altogether, 16.7% of women reported no initial distress at the news of the multiple gestation, while 33.3% reported extreme distress.

Distress at the news of multiple fetuses was not associated with any of the mental health measures, including reported depressions and psychiatric symptoms. For example, higher levels of initial distress was not correlated with MDD ($\chi 2$=.83; N.S.).

Surprisingly, the number of fetuses a woman had conceived was not significantly associated with reported levels of distress at the news (Spearman r=-.26; N.S.). Nor was distress associated with prior infertility history, such as length of time trying to get pregnant, or type of treatment. For example, women who conceived after ovulation induction were no more distressed than women who conceived after in vitro fertilization ($\chi 2$=.54; N.S.).

While no statistically significant patterns were found, some women who had experienced great difficulty in attaining pregnancy experienced the conception of multiples as a narcissistic blow -- yet another thing going wrong with their body and yet another medical intervention needed to "fix" the problem. Such women commented on the irony, experienced as a great injustice, of trying so long and hard to get pregnant only to face another difficulty. "Why me?" was a reaction mentioned by these women.

Reactions to the news of multiples was shaped by whether the news was unexpected. For some women, even before the fetal sacs could be detected by ulrasound, the possibility of multiples was suspected because of numerous mature follicles before insemination, or abnormally high hormone levels after conception. A few of the women who had been given Pergonal injections had developed ovarian hyperstimulation. This potentially life-threatening medical condition, in which the ovaries swell to the point that they may rupture, was extremely uncomfortable as well as anxiety provoking for women:

> "I was totally overwhelmed. It was very frightening because my ovaries were the size of grapefruits. I was afraid they would burst and that I'd never have another chance to get pregnant."

For several women, the exact number of fetuses was not diagnosed immediately. The difference between three and four fetuses could make the difference in whether or not couples opted for the reduction. One woman said that she had decided to carry the triplets because she and her husband were "totally against abortion", but a week later, when quadruplets were discovered, her doctor convinced her to reduce.

While most aspects of reproductive history were statistically unrelated to level of distress, the exception was prior children. Women were more likely to be highly distressed about the multifetal pregnancy if they already

had birth children. Over half (52.6%) of the 15 ST patients who already had children said that they were "extremely distressed" at the news of multiples, compared with 17.4% of the childless women ($\chi 2=8.40$; $p<.02$). (See Figure M.)

Women with prior children immediately focused on the negative implications of a multiple pregnancy. They could well imagine the difficulties of parenting multiples and were concerned about their older children. On the other hand, for the childless women the distress about "too many" was often tempered at first with their joy at being pregnant.

Finding out about selective termination.

Over half of the subjects (54.8%) were not told about selective termination until after the diagnosis of multiple fetuses. Just over a third, 38.1%, had been told about the procedure before their pregnancy, when potential complications of ovulation induction or embryo transfer were discussed by the treating physician. (See Figure N).

Women's initial response to being told about the selective reduction procedure varied greatly. Only 11.9% percent of women described having a negative response at first. But these negative reactions were often quite strong. One woman vehemently announced:

> "I didn't want to do it. After going through all that to get pregnant. To me, no matter what pretty terms they used, it was still abortion. Still killing one of my own."

Figure M.

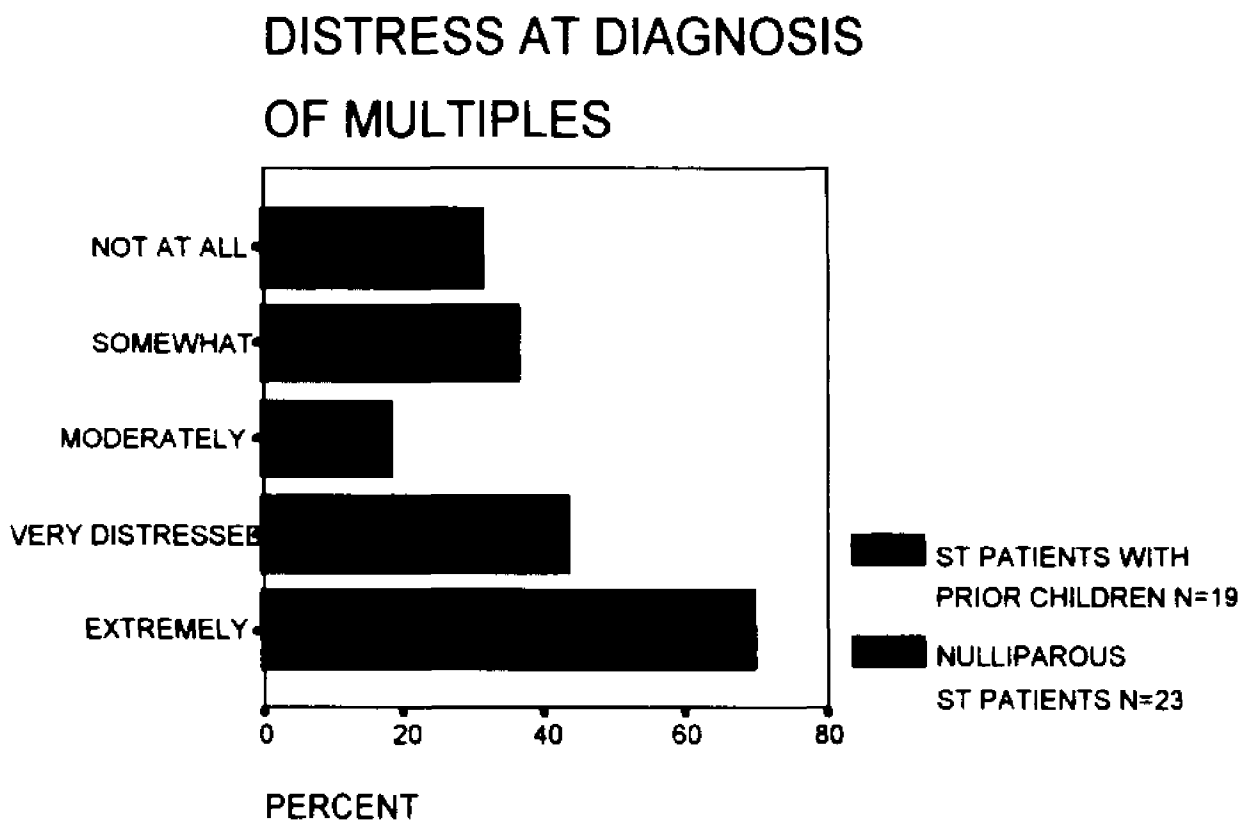
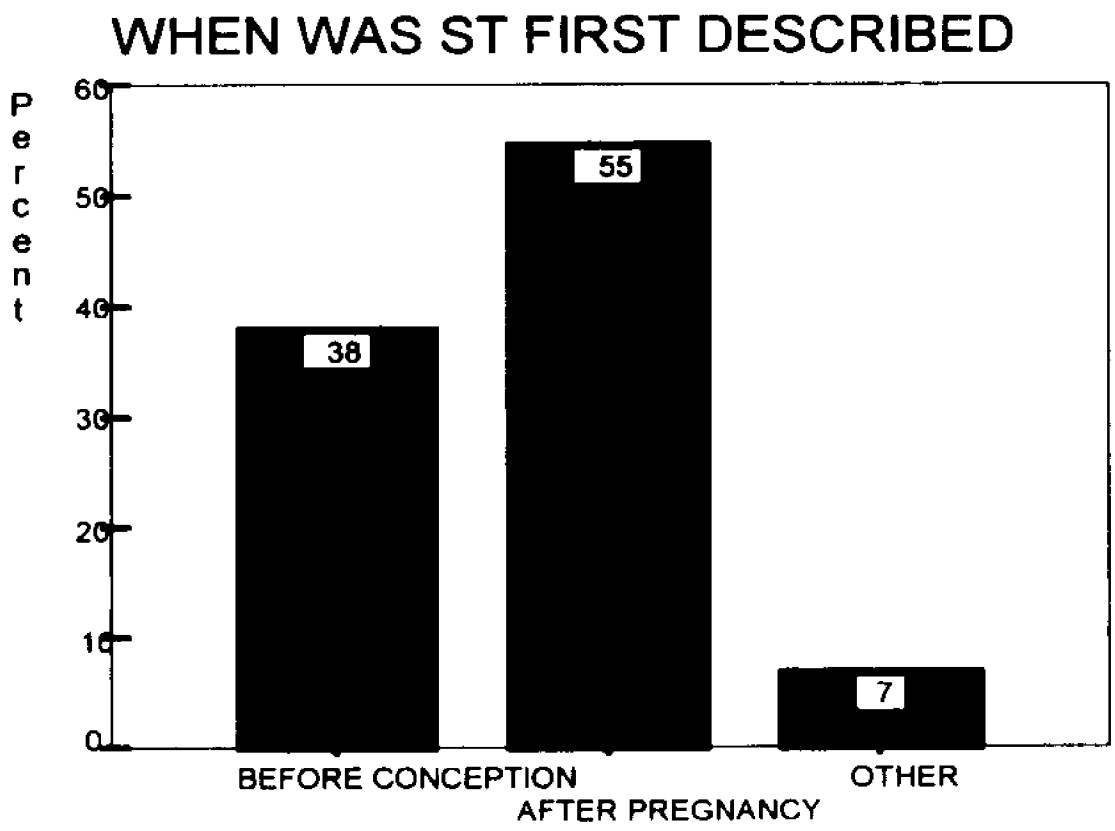

DISTRESS AT DIAGNOSIS
OF MULTIPLES
NOT AT ALL
SOMEWHAT
MODERATELY
VERY DISTRESSED
EXTREMELY
0
20
40
60
80
PERCENT
ST PATIENTS WITH
PRIOR CHILDREN N=19
NULLIPAROUS
ST PATIENTS N=23

Figure N.


WHEN WAS ST FIRST DESCRIBED
Percent
60
50
40
30
20
10
0
38
55
7
BEFORE CONCEPTION
AFTER PREGNANCY
OTHER

On the other hand, 33.3% of women reported having a positive response. These women said they were relieved at having an option besides carrying the multiples. For example, this woman, who heard about the procedure before she conceived:

> "My reaction was positive.... It was like knowing you have an air bag in your car. You know, glad you have it, but you hope you don't need it."

A total of 16.7% of women reported feeling neutral about the possibility of selective termination, while the largest percentage, 38.1% said their initial reactions were "mixed".

Whether a woman was told about the procedure before or after conception was not statistically related to whether her initial reaction was positive or negative ($\chi 2=1.26$; N.S.). For one thing, women who were told about the procedure before pregnancy often dismissed the idea of the procedure, assuming "That will never happen to me." The obsession during infertility treatment on conceiving made it difficult to focus on the chance of too many fetuses:

> "They tell you about the reduction before the in vitro. But it's kind of casually mentioned, and people kind of put it aside. Because at that point, your whole thought process is <u>Getting Pregnant</u>. Nothing else matters. [The reduction] doesn't even factor in to the whole equation at that point.
>
> And then all of a sudden you get pregnant. And all of a sudden you're faced with this huge surprise.
>
> I was like, 'How'd I end up here?'"

Other women noted, however, that knowing about the existence of selective termination made the diagnosis of multiples less traumatic. As one woman explained:

> "We had a seminar with the doctor, like an introduction to the IVF program. And I think that the implanting of the idea [of the selective termination] probably made it a little easier to take later on.... They gave examples of triplets who had serious complications and they kind of set your mind towards twins."

The importance of being informed before pregnancy was emphasized by a woman who wasn't told about the procedure until after she conceived triplets with in vitro:

> "I was very upset with the doctors that no one had ever used the term pregnancy reduction before I got pregnant. I was angry and I told them.

Whether women were informed about the procedure before or after conception was not significantly associated with reports of depression or current psychiatric symptoms. Whether a woman's initial reaction to the procedure was positive, negative, neutral or ambivalent was also statistically unrelated to measures of mental health. And contrary to hypothesis that Catholic women would be more likely to initially feel negatively about the procedure, there was no association between religion and initial thoughts about the procedure ($\chi 2=7.05$; N.S.).

While undergoing infertility treatment these patients had already coped with repeated disappointments and physically invasive treatments: they were accustomed to setbacks. One way of coping with the reduction was to

minimize it as "just another thing" -- the final step in a long series of medical interventions. One woman used humor and intellectualization to distance herself from the emotional ramifications of the reduction:

> "When you do in vitro it's so technical. You see, they've taken your body and turned it into a technical kind of machine. So, you knew that [the reduction] was just another one of the steps:
> 'O.K., now we're going to do the transfer [of fertilized eggs].
> 'O.K. now we're going to take out the ones that we put in that were too many.'
> I mean you go through so many tests, so many things, it was just part of the procedure. It was like correcting the course of a boat:
> 'Oops, you went too far. O.K. now you've got to bring it back.'
> So ahead of time you didn't really look at it emotionally at all."

Making the decision: Reasons why.

The primary reason which most women gave for deciding to reduce the multifetal pregnancy were fears that all the babies would die, or be born so prematurely that they would have serious health problems. When asked to choose among a number of reasons for undergoing the procedure, 71.4% of ST patients said that health risks to the babies was their primary concern. The more fetuses a woman was carrying, the more clear the risks. As one woman put it:

> "There was not much alternative... There's probably a minimal chance of having 5 fetuses survive, so it was either the reduction or nothing, basically. Being a Roman Catholic, obviously it's against my religion. But being a logical person, I realized I didn't have much choice. It's better to save two lives than not to save any. That's the way I looked at it."

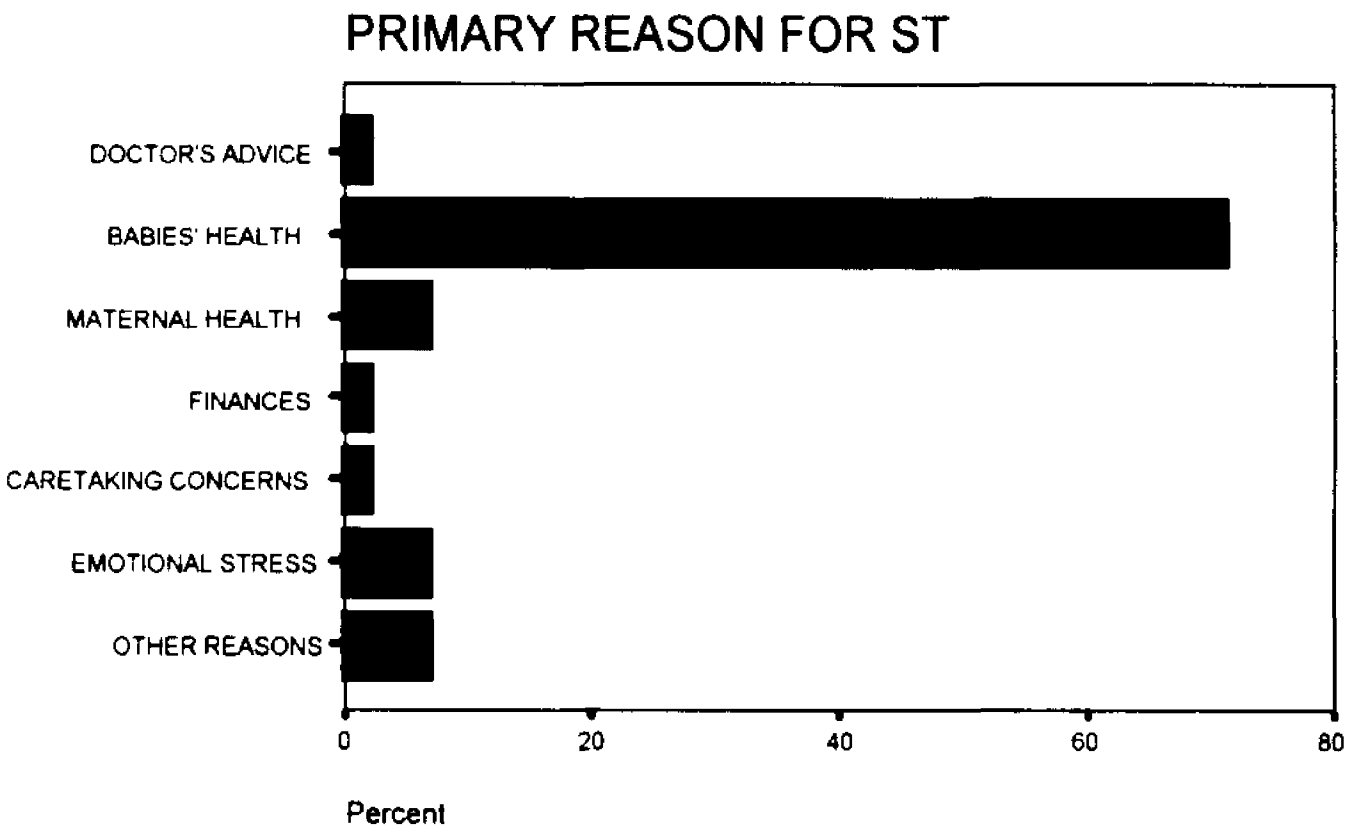
Three women (7.1%) said that the risks to their own health were the determining factor in deciding to reduce, and another 3 women said that the emotional stress of parenting multiples was their primary reason for undergoing the procedure. One woman said that she underwent the procedure primarily because of pressure from her husband. This was the only ST patient with a successful pregnancy outcome who regretted having undergone the procedure.

While the health of the children was the most important factor for most women, other factors also played a role for many women. The physician's advice influenced women "quite a bit" or "extremely" in 73.8% of cases. Over half of the women (54.7%) considered maternal health risks an important factor. Financial concerns were "quite a bit" or "extremely" important for 42.8% of the women. Other factors which were important to many women were the practical difficulties of caring for so many infants, the emotional stress of parenting multiples, and the potentially negative impact of sick infants on older children in the family. (See Figure O).

Making the decision: How quickly and easily?

Most women and their husbands made the decision to reduce very rapidly. A total of 45.2% of subjects made the decision the same day that the multiple fetuses were diagnosed, including four women who said that they had

Figure 0.


PRIMARY REASON FOR ST
DOCTOR'S ADVICE
BABIES' HEALTH
MATERNAL HEALTH
FINANCES
CARETAKING CONCERNS
EMOTIONAL STRESS
OTHER REASONS
0
20
40
60
80
Percent

already made up their minds before conception to reduce a multiple pregnancy should it occur.

The mean number of days post-diagnosis for a decision to selectively terminate was 8.34 (Median= 2 days). The couple that took the longest time to decide -- five weeks -- felt that the decision was not finalized until they were in the physician's office ready to undergo the procedure.

Women fell at two extremes in how difficult or easy they felt it had been to make the decision to reduce the pregnancy: no one thought that the decision had been "moderately difficult" to make. (See Graph P).

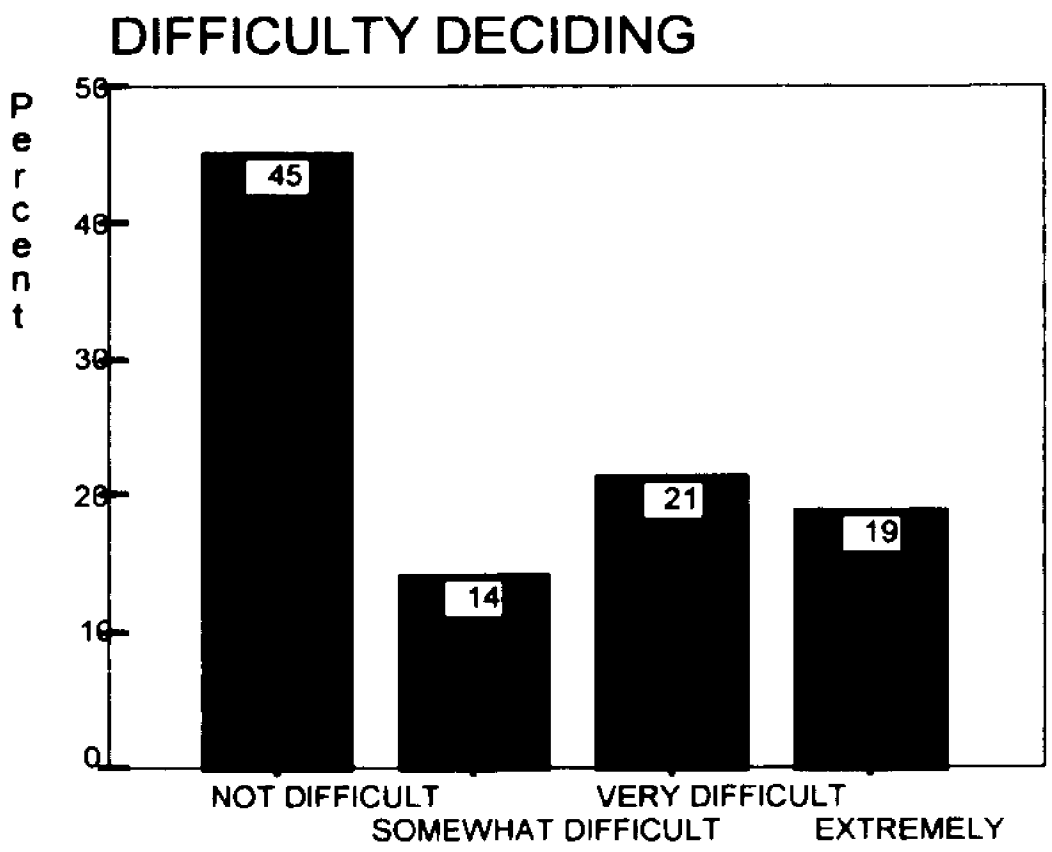
The largest group, 45.2%, said that the decision was not difficult. As one woman put it:

> "You can't think about it emotionally. You have to think about it logically... You have to stop and think about what it would be like with four infants. The finances and parenting. There's more than just having the children. There's taking care of them, and supporting them, and sending them to school, that kind of thing".

At the other extreme, 19% of the ST patients felt that the decision had been extremely difficult to make. A nurse who works in a high-risk obstetrics unit, and who had recently seen a woman carrying triplets end up in the intensive care unit with a hysterectomy, still found the reduction an extremely difficult decision:

> "Personally, I don't believe in abortion, so it was a difficult decision to make. And considering it was my husband's and my child -- I feel very guilty about that."

Figure P.


DIFFICULTY DECIDING
Percent
50
40
30
20
10
0
45
14
21
19
NOT DIFFICULT
SOMEWHAT DIFFICULT
VERY DIFFICULT
EXTREMELY

Difficulty or ease in making the decision to reduce was not correlated with the number of fetuses a woman was carrying (Spearmans r=-.03; N.S.).

This was one issue in which differences were associated with religion. On the average, Jewish women had significantly less difficulty in deciding to terminate than either Catholic or Protestant women (Kruskal-Wallis one-way Anova= 9.87; p<.01). A total of 68.8% of Jewish women said that the decision to reduce was "not difficult", compared with 25.0% of Catholic women and 38.5% of Protestant women.

Most women (71.4%) felt that the decision to terminate was equally difficult for their husbands to make. Eight women thought that the decision was harder for them than their husbands, and four felt that the decision had been more difficult for their husbands. These perceived differences were not statistically significant (Wilcoxon Matched-Pairs Z=-1.41; N.S.).

Making the decision: Seeking advice.

After being informed about the procedure by their infertility specialist, 59.5 % of subjects sought advice from other physicians before undergoing the procedure. Many women looked up medical articles and did extensive research, trying to weigh the odds for and against the selective termination.

A couple of women called a California organization called The Triplet Connection to find out about more about parenting multiples. This group was strongly opposed to selective termination, but did inform the women about "how much work triplets would be." Another woman spoke to the mother of quadruplets; a conversation which she said influenced her to go ahead with the reduction.

Two women mentioned talking to patients who had already successfully undergone ST to find out more about the procedure. Although they learned more about what to expect, both women said that the conversations were not as helpful as they had hoped. The women who volunteered to talk about the procedure had not found the experience very emotionally stressful, while the women seeking advice were extremely concerned about ethical issues.

The ten ST patients (23.8%) who discussed the procedure with mental health professionals experienced it as very helpful. Some of these women were already in psychotherapy, others sought therapy specifically because of the selective termination. A few women spontaneously suggested that counseling be provided to all ST patients.

Six women (14.3%) sought religious counseling before undergoing the procedure. Both of the Orthodox Jews in the sample sought permission for the procedure from rabbis, who not only allowed the procedure, but told the families how many fetuses should be reduced.

> "I was surprised at the [rabbis'] decision. I guess my maternal instinct was not to reduce at all, and let God decide, without any kind of manipulation on our part. However, I felt good, because I felt like, 'Hey, this is what the doctors are recommending, and the rabbis are going along with it.'....It made things easier because it didn't have to be my decision."

Similar feelings of relief were expressed by other women who received support from religious authorities. One Catholic woman spoke with a nun who was also a nurse and who supported the procedure as a way to give some of the babies a better chance of survival. Another Catholic woman and her husband spoke to a priest who was a close family friend. This priest accompanied them to the hospital for the procedure.

One woman wished that she could talk to a Catholic priest about having undergone the reduction, but she was too afraid of disapproval for her actions. Her biggest concern about the reduction was her "salvation" and she feared that condemnation by a priest would further intensify her guilt.

Reducing to a single fetus.

Twelve women (28.6%) in the sample reduced their multiple pregnancies to a single fetus. Four of these women reduced to one for medical reasons, including congenital malformations of the uterus and pre-existing health problems. These women were relieved the decision to reduce was not their responsibility. As one said:

> "Once the doctor said it was medically necessary I felt better. I was glad that someone else made the decision and the pressure was taken off me."

Eight women reduced to a singleton for personal rather than medical reasons, and expressed concern about the practical, financial, and emotional difficulties of parenting twins. Six of these 8 women already had at least one birth child and were worried about how the stresses of twin infants would affect their existing families. Despite such a small cohort size, the association between having prior birth children and reducing to a single fetus for non-medical reasons just missed reaching significance ($\chi 2 = 3.53$; $p=.06$).

The following quotes are examples of how women spoke about the decision to reduce to a single fetus:

> "I always knew that there was no way I would carry three. But then I didn't know whether to go to two or to one. It was a very hard decision. I got books about twins, I looked into it. But I just felt that emotionally, physically, financially, marriage-wise... that it would be better to have one at a time. I just never pictured myself as the mother of twins. What would I do about work, cars, stroller, living?.... It frightened me. I just thought that I would loose myself in it."

> "We made the decision to go two to one in Timor's office. Because there were not more (physical) problems. It was a selfish decision. I thought that I would enjoy one child and then get pregnant again. Since there was no greater risk after going into the uterus, we decided to go all the way for what we wanted.... If I'd only had twins I probably wouldn't have done it -- but I was already in there so why not take another one?"

Two of the eight women who reduced to a single fetus had conceived twins. One of these women sought to reduce her pregnancy because her first child had been born six weeks premature and spent several weeks in a neonatal

intensive care unit. Although physicians told her that there was no reason to expect that subsequent pregnancies would be delivered prematurely, after that stressful experience, she was extremely fearful that she would be unable to carry twins to term. Her doctors were unsupportive of her wish to reduce one of the twins, and she had to seek information about the procedure on her own. To this day, she resents the doctors who said that she could voluntarily abort the entire pregnancy, but who wouldn't perform a selective reduction for "ethical reasons".

The second woman who reduced from two to one was quite explicit that she would have aborted the entire pregnancy if she had not been able to reduce the pregnancy. This woman, a mental health professional, already had one child conceived via in vitro fertilization. When her first child was less than a year old, the woman conceived a twin pregnancy, also through IVF. She called doctors all over the country before finding a physician who would reduce to a single fetus.

Some of the women who reduced to a singleton had spoken to other physicians who performed the medical procedure but refused to reduce pregnancies to a single fetus. Women and their husbands resented this policy and wanted to make the choice themselves.

One woman in the sample who reduced to twins said that she did so because of pressure from her fertility

specialist. She had a year old daughter when she conceived the multiples and was worried about caring for three infants.

> "Initially I wanted to go down to one. My doctor advised me not to do that. As a matter of fact, he didn't think it was an option. So it wasn't until we were sitting with Dr. Timor that he told us that we could go to one. And my doctor was there, and again he said he advised against it. There have been moments when I've thought "Gee, maybe I should have gone to one.'"

Pregnancy outcome was not associated with the number of fetuses left after selective termination. The 12 women who reduced to a single fetus were no more likely to miscarry than the 30 women who reduced to twins (Fisher's Exact Test, p=.668).

Mental health status was also unrelated to whether a woman reduced to one or two fetuses. The 8 women who reduced to a singleton for non-medical reasons were no more likely than other ST patients to report being depressed for a week (Fisher's Exact Test, p=1.00) or to meet criteria for MDD (Fisher's Exact Test, p=1.00). Women who reduced to a singleton for personal reasons did not report increased feelings of guilt about the reduction: 50% of these women said that they felt no guilt while at the doctors office to have the termination, as compared with 41.2% of the other ST patients ($\chi 2=3.09$; N.S.).

The only comparison which approached significance was the measure of current psychiatric symptomotology, and this analysis indicated a trend for the women who reduced to a

single fetus to be less symptomatic. None of the 8 women who reduced to a singleton for non-medical reasons met BSI criteria for "caseness", compared with 29.4% of the other ST patients ($\chi 2=3.09$; $p=.08$). This trend towards higher psychiatric symptom levels among the women with twins might be due to the physical difficulties of twin pregnancy and the practical stresses of caring for two infants.

Waiting for the reduction.

The selective termination was generally performed during the ninth or tenth week of pregnancy (Mean = 10.09 weeks; SD = 1.0, as measured by fetal crown-rump length). This meant that most ST patients waited about a month between the diagnosis of multiples and undergoing the procedure. This was the most distressing time of the pregnancy for many of the women. As one woman described it:

> "I was upset the whole time. I was extremely upset. It was probably one of the most stressful points in my life. And I kept thinking ' Maybe one will reduce on it's own.' Even [on the day of the reduction] I sat in the doctor's office waiting for him to talk to us and I was ready to head home."

Quite apart from the issue of the multiple fetuses, many women, especially those with a prior history of miscarriage, were worried about "getting through their first trimester." For some, defending against the possible loss of the pregnancy resulted in sense of emotional distance, and a feeling that the pregnancy was not real. "I never

believed I was pregnant," said one woman about her feelings before the reduction.

The irony of the situation continued to haunt women who had been through extensive fertility treatment. One woman expressed this in terms of the finances:

> "I kept thinking, 'I just spent $2,000 to get pregnant and now I'm spending $2,000 to kill one.' It just seemed surreal."

When asked to retrospectively rate their emotions during various time periods from before pregnancy until after birth, the time between the diagnosis of the multiples and the reduction was given the highest average rating given for "sadness and depression" (Mean = 3.07 where 3 = "moderately" sad and depressed). Only 7 ST patients (16.7%) said that they did not feel at all sad or depressed during this time.

Not only did most women experience at least transitory feelings of depression, but among the subset of patients who experienced more serious depressive episodes this was the most common time of onset. Seven (53.8%) of the 13 SST patients who reported a depressive episode said that their negative mood changes began with the diagnosis of multiples.

The two women in the sample who reported chronic states of depression, which began long before their pregnancy, found that their depression was exacerbated by the stress of waiting for the termination. One depressed woman described the time as follows:

> "I was very confused, very anxious, depressed, crying. Feeling out of control. Feeling very inadequate. And having feelings that I did not want to be pregnant at all. Because at that point it triggered something in me that my pregnancy was not natural, that the whole process of IVF and the multiple pregnancy was very unnatural, very manipulated."

If feelings of depression were common, anxiety was even more prevalent as women waited to undergo the reduction. Every subject reported feeling at least some anxiety during this period of time, and 69% of women were "quite a bit" or "extremely" anxious.

Women in the sample were much less likely to report feeling guilty as they anticipated the reduction. A total of 45.2% of women reported no guilt, and only 9.5% of women said that they felt "extremely guilty" at this time. The presence and strength of guilt feelings was not associated with religion (Kruskal Wallis 1-Way ANOVA=.78; N.S.) nor correlated with how religious a woman reported herself (Spearman r=-.12; N.S.). Women often related guilt feelings to a sense of responsibility for choosing the termination:

> "The only strong feelings I had were feelings of guilt....I just felt that it wasn't right, and it wasn't fair, for me to have to decide who lives and who dies."

Sometimes women had been informed that fetuses might be lost spontaneously, and a few became preoccupied with the possibility of this "vanishing twin syndrome", hoping that the selective termination would not be needed:

> "Everyone told us that there was a good chance that we would have what they call a "vanishing twin" and that probably all three of them wouldn't make it and we wouldn't have to worry about it.... I kind of went

> through all the motions and made the appointment [for the reduction] but it was kind of like a "just in case" thing. We made the decision with the frame of mind that we weren't going to have to do it.... Then, when I came to realize that 'Oh my god, I'm going to have to go for this reduction, and that still means I could lose the entire pregnancy,' it was horrible."

Defending against anxiety about the procedure by hoping for a spontaneous reduction did not appear to be a successful coping strategy. The woman quoted above, for example, experienced an episode of depression after the procedure which was characterized by severe guilt.

Four women in the sample (9.5%) did have spontaneous partial reductions: 2 went from quadruplets to triplets, and 2 went from quintuplets to triplets between diagnosis and the procedure.

As women waited for the reduction, they were also coping with the physical symptoms of the first trimester of pregnancy. Many women reported severe nausea and extreme fatigue during this time, which in some cases their doctors attributed to the high hormonal levels associated with the multifetal pregnancy. Among the 28 ST patients who had been pregnant before, and thus had a point of comparison, 57.1% thought that they were especially ill and tired because of carrying multiple fetuses. Another 25% were unsure whether their physical experience of pregnancy was more difficult during this time because of the multiples, and 17.9% did not think that they were more ill or tired. Whether or not ST patients reported being more ill or tired was not associated

with the number of fetuses they had conceived ($\chi 2=1.83$; N.S.).

Worries and fears before the procedure.

Women's overwhelming concern before the reduction was that they might lose the entire pregnancy. When asked to choose among a list of possible fears and concerns 78.6% said that their greatest worry was the survival and health of the remaining fetuses. For 57.1% of ST patients the fear that they would lose the entire pregnancy was "extreme".

Other fears and anxieties often seemed insignificant in comparison to concern for the remaining babies. For example, when asked to rate their concern about maternal health risks of the procedure, 54.8% of women said that this did not concern them at all.

Women varied greatly in their apprehension about possible pain and discomfort from the procedure: 21.4% reported no fears of pain or discomfort; 52.4% were "somewhat" or "moderately" worried; and 26.2% remembered being "quite a bit" or "extremely" concerned about possible pain.

Just over a fourth of the women (28.6%) said that before the procedure they were not at all worried about the possible emotional reactions they might have afterwards. On the other hand, 50% of women said that they were "somewhat" or "moderately" worried about the emotional

reactions they might have after the termination, such as concern about feeling sadness or grief. Some of the concerns about emotional reactions were quite specific, such as one woman who worried about how she might react to "looking at the remaining tissue of the dead fetus."

Ethical concerns.

Only four women (9.5%) said that they were "extremely" concerned about ethical issues before the procedure. At the other extreme, 23.8% said that they had no ethical concerns before the reduction. The largest group of ST patients, 33.3%, said that they were "somewhat" concerned by ethical issues. Contrary to hypotheses, Catholic women were no more concerned about the ethics of selective termination than other subjects: whether and how much ST patients were concerned by ethical issues was not associated with their religious affiliation (Kruskal-Wallis 1-Way ANOVA, F = 2.46; N.S.). There was a trend, however, for women to be more concerned about ethical issues the more religious they considered themselves (Spearman r=.26; two-tailed p=.092 *).

Women who reported no ethical concerns about the procedure often viewed it as an unequivocal medical necessity. An atypical ethical position was that of one

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*Note that using a one-tailed tailed test this correlation was significant at p<.05. Because the finding was in the hypothesized direction, a case could be made for using a one-tailed test in this instance.

Jewish woman who said that "Morally, I don't consider it a baby until it comes out." While her comment is consistent with Jewish religious codes, many other Jewish women felt that they were making a decision to take a baby's life.

Although no specific question was asked about a woman's political stance regarding legal, voluntary abortion, 9 women (21.4%) spontaneously commented that they were anti-abortion. And an additional 9.5% said that while they were politically pro-choice, that they never would have imagined that they would personally undergo an abortion.

Three women mentioned fears that they would be punished by God for undergoing the procedure. One woman summed up many commonly expressed concerns:

> "I think that I always knew that I supported abortion rights for people, but I never thought I'd be in a position where I'd have to choose to do that. And on some level I felt like I was killing one of our babies... and I felt really bad about that. I remember at the time thinking, you know, should I talk to a rabbi about this? And I just wondered what people would think. On a deeper emotional level I thought I would be punished. Not by anybody specific. But by God. So I just agonized."

Connected with ethical concerns, was the worry, expressed by two women, that anti-abortion groups, such as Operation Rescue would somehow find out that they had undergone the procedure. Both women used the term "paranoia" to describe their fear that "some rabid group" would gain access to their medical records.

Undergoing the selective termination.

The most frequent and powerful emotion associated with the selective termination was anxiety. When asked to rate their anxiety and worry on the day of the reduction 52.4% of the ST patients said that they were "extremely" anxious. Only one woman denied feeling any anxiety or worry on the day of the procedure.

Level of anxiety just before, during and after the procedure was unrelated to reported depressive episodes, current psychiatric symptoms, length of infertility treatment, or to religious affiliation. The vast majority of patients were nervous about the outcome of the procedure, and the level of their anxiety did not predict subsequent coping.

Feelings of sadness and depression were less common than anxiety. Thirteen women, 31.0%, said that they did not feel at all sad or depressed on the day of the procedure. At the other extreme, 21.4% were extremely sad and depressed. The level of depression experienced at this time was unrelated to psychiatric symptoms at the time of the interview, length of infertility treatment before the multifetal reduction, or to religion. However, among the SST patients, depression on the day of the procedure was correlated with whether or not they reported depressive episodes of a week or more ($\chi 2 = 9.91$; $p < .05$).

Guilt on the day of the reduction was even more significantly associated with presence or absence of a depressive episode ($\chi 2=9.38$; $p<.01$). Among the 34 SST patients, all 5 of the women who met criteria for MDD felt guilt on the day of the procedure, while almost half (48.3%) of the women without MDD said they had no guilt feelings ($\chi 2=9.04$; $p<.05$). Guilt on the day of the procedure was unrelated to current psychiatric symptoms, length of infertility treatment or religion (Appendix J). (See Figure Q for a summary of emotions on the day of the procedure).

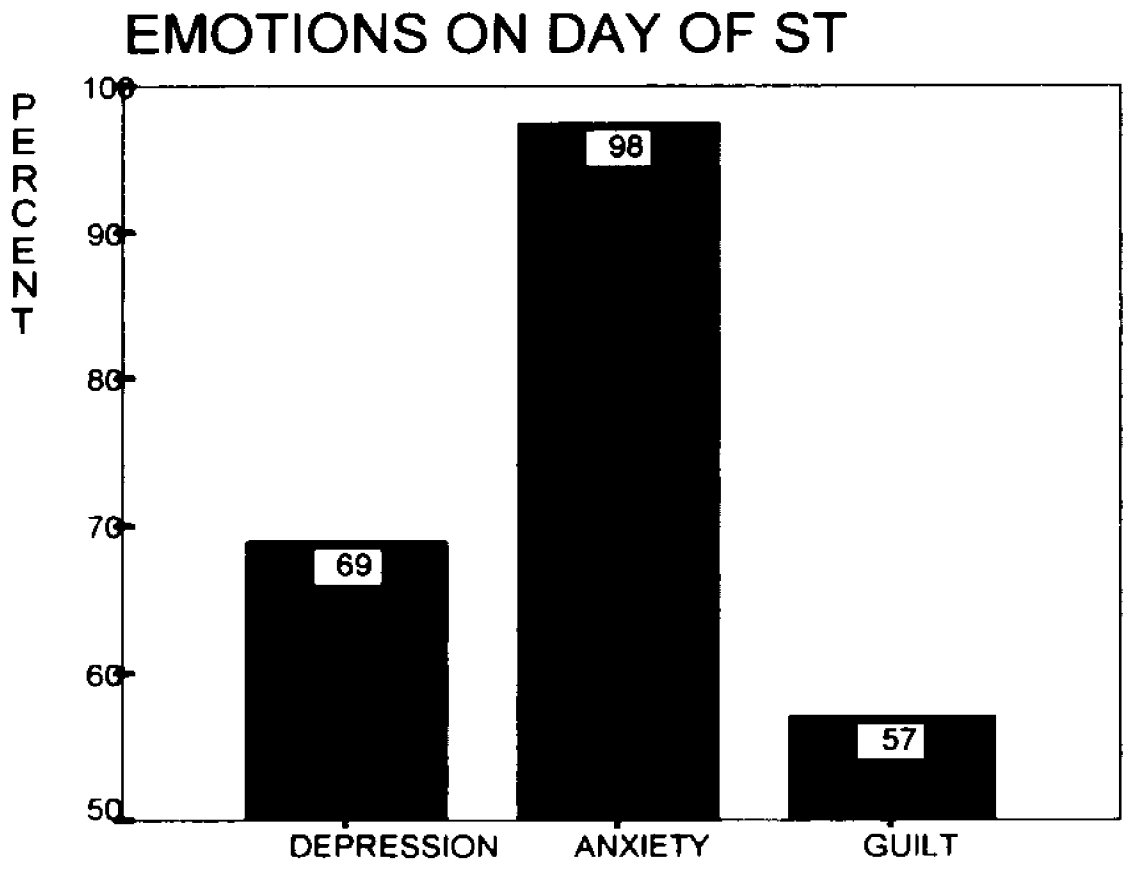
When asked an open-ended question about their experience of the selective termination, several women said that it was "fine", or "better than expected". As one women put it:

> "The actual procedure wasn't hard. I had my husband there to hold my hand. And I had had so many ultrasounds that it didn't feel any different except for the noise of when it happened. So the procedure itself was fine.... I sort of shut off my emotions."

Women who had benign reactions to the procedure tended to view it as another technical procedure, and discount the differences between the termination and previous infertility treatments they had undergone.

A few women said that the experience was "terrible", but were unable or unwilling to elaborate. However, the majority of women were able to describe the procedure and their feelings about terminating the fetuses.

Figure Q.


EMOTIONS ON DAY OF ST
PERCENT
100
90
80
70
60
50
98
69
57
DEPRESSION
ANXIETY
GUILT

The following section describes the various steps involved and women's responses to various aspects of the pregnancy reduction.

The actual procedure.

When a couple arrived at the hospital for the procedure, they first met with Dr. Timor in his office, where he explained the procedure in detail, answered any questions, and gave the odds of a positive or negative outcome, based on his previous patients. Most women in the study felt positive about the information they received during this meeting, and many commented on Dr. Timor's "professionalism" and "kindness".

> "Dr. Timor and his staff took the time to explain in great detail exactly what was going to happen, exactly what I would perceive, how it was done, who would do what, how long it would take. Everything was explained and laid out in very great detail before we began....Knowing what lay in store for me made all the difference."

Next, a preliminary sonogram was conducted to measure and map out the location of the fetuses. This step was emotionally difficult for many patients, because the fetuses, although only an inch long, are clearly identifiable as human. At this stage of pregnancy the heart can be seen beating, and the arms and legs can be seen moving slightly.

During the sonogram the physician takes measurements and gives each fetus a label, deciding which should be

terminated on the basis of position within the uterus. From then on, the medical staff refers to each fetus by its alphabetical label. For several women, hearing the labels seemed to confer the fetuses with a more individual status. One woman said that she first became aware of ethical concerns about the termination at this point:

> "It didn't hit me until I saw the sonogram, and they were mapping out 'A', 'B', and 'C'. Then it was like naming them and they became more real."

In one case, a medical technician upset a patient by using the word "baby" rather than the more technical term "fetus" during the initial sonogram. This prevented intellectual distancing and brought to mind the reality of killing a wanted baby:

> "Somebody was giving me a sonogram before the procedure when they had to get data on the fetuses and they were being called babies. I would rather that they be called fetuses, I mean, it was hard enough seeing them.... When they were mapping everything out, they were saying 'This is Baby A. This is Baby B.' And it was like 'Baby. Baby. Baby.'
> And I was thinking, 'Why am I here?'"

For one woman, the designated letter for each fetus stayed in her thoughts as she anticipated what she would feel like after delivery:

> "I guess when you have the babies in the hospital [after birth] they name them 'Baby A' and 'Baby B'. But when they did the reduction they also did 'A', 'B', and 'C'. And the one that was reduced was 'B.' So that kind of bothers me. Just that I feel I don't have a 'Baby B'. It's kind of strange. But it's little things like that that stick with you."

For the majority of women the procedure was somewhat uncomfortable but not painful. However, for at least 6

women the procedure was physically painful (possibly because of the location of the selected fetus within the uterus, according to Jodie Lerner, M.D., one of the physicians who performs the procedure).

The instrument used for the termination -- a 10 inch, spring loaded needle, released from its casing by a trigger, and strapped to the ultra-sound wand -- was frightening to many women, in part because it reminded many women of a gun.

> "One practical suggestion that I have is that the instruments that are used should be camouflaged. The patients should not see the instrument because it looks like a gun. I was appalled."

Altogether, a third of the women (N=14) used the term "killing" or "murder" when talking about the procedure. The concept of shooting with a gun was reinforced because the needle makes a popping noise when it is injected into the fetal heart.

> "I remember when he was doing the procedure. You could hear the gun, you know, the needle, the popping noise. And I could hear a baby crying in my head. And that was it. It was done. What was hard was hearing Dr. Timor talking -- 'O.K. The heartbeat stopped.' I didn't want to know that.... What was hard was knowing you had killed someone."

Hearing the medical staff discuss what they were doing was upsetting for many women. One woman wished that she had received anesthesia, not for the physical pain but so as not to hear the doctors' discussion:

> "If I hadn't been awake it would have been better. Because they were talking about each individual fetus and how easily accessible it was, the heartbeats, that kind of thing."

Other women wanted to avoid visual aspects of the procedure:

> "If there was any way for a screen to be put up when the operation is being performed, so that you don't see them invading your body, I think it would be highly, highly beneficial. That was the most distressing aspect of the reduction."

One woman who said that the procedure was not emotionally upsetting belied her disaffected stance with a graphic description of what she'd seen on the ultra-sound monitor:

> "It was not as bad because we'd thought about it for a long time. You're watching and you see the fetus moving, and then the needle go in, and you're watching them die. And that could have been more stressful than it was."

More than one woman regretted watching the image of the fetuses on the ultrasound monitor:

> "I was like a fool and watched on the screen. I would never watch it again. I can still see it in front of my eyes like yesterday. I could see four heartbeats on the screen and the needle going in, and then the hearts stopped.... and there's nothing going in and out."

The moment of impact, when the needle was inserted, was sometimes a crisis which caused regret:

> "Right when they got the fetus I thought 'I shouldn't have done this. I just doomed myself.' And I was just devastated.

Usually the procedure took only a few minutes for each fetus. Sometimes, however, there was difficulty injecting the proper area and the procedure took a long time, or had to be repeated. For at least three women this experience gave rise to fantasies that the fetus somehow knew what was happening and was resisting the process:

> "The procedure was uncomfortable but not painful. The gun going off makes a noise and I jumped.... The first one they did was alright, but the second one took longer. It was a funny feeling: like 'This one doesn't want to die.'"
>
> "With the first fetus, [the doctor] tried, but it didn't work. The heartbeat kept going on and on. And he had to leave it, and come back to try again later. I said, 'Maybe this poor baby wants to live. And we are killing it.'"
>
> "The ultrasound screen was facing right towards us. The first time they put the needle in it didn't work -- the baby moved away from it. And when my husband saw that happen he left. And I had tears completely streaming down my face and I was an emotional wreck. And they had to do it again."

After the selective termination was completed, women had to wait for about an hour and then have another sonogram. Bleeding following the procedure was common, and frightened some women, who had not known what to expect and who thought that they might be miscarrying. The final sonogram was often reassuring, because the beating hearts of the non-terminated fetuses provided evidence of their continued survival.

However, one women, who had reduced to a single fetus for medical reasons, had an unfortunate experience when this final sonogram was conducted:

> "When I went for the recheck, after the reduction, we saw the baby that they chose to live. And then Dr. Timor needed to check the other two. And it was the last thing that I saw; two babies, still perfectly formed, but at the bottom of the sack. Dead.
>
> It was the last thing I was left with and it was extremely stressful. I wish that he could have gone back to the one who was living and shown me that one so that I would be left with a different image."

Overall, the graphic aspects of the selective termination increased the emotional distress experienced by the majority of ST patients.

Husbands' participation and support.

Most women had their husbands in the room with them during the procedure, although 6 husbands (14.3%) were not present. Only four women went to the hospital alone. The women who were not accompanied by their husbands said it was because of the expense of traveling to New York from far away, or because the husband was much more emotionally upset by the idea and ethics of the procedure.

In only one instance did a subject regret her husband's absence. This woman had traveled to New York from another part of the country and her husband could not take the time off from a new job. While she underwent the procedure, other doctors observed the process, and their presence made her feel even more alone and unsupported:

> "The actual procedure was scary. I felt like I was an experiment. There was a roomful of people there - about three or four doctors, and then the ultrasound person, and the nurse. So there was a room full of doctors there observing. It sort of felt inhumane. Because everybody was there except my family. And the way they talked about it: 'O.K., I have one.' ' O.K., it's gone.' 'I have no heartbeat.' So that was very emotional to lay there and listen to them."

Ten women, or 23.8%, were accompanied by a friend or family member, usually the patient's mother, in addition to or instead of the husband.

In general, women were very satisfied with the emotional support they received from their husbands during pregnancy. Three quarters of the women (76.2%) felt that their husbands had been extremely supportive with regard to the reduction, and an additional 14.3% felt that their husbands had been "very supportive". Only 16.7% of women felt that there was anything their husbands could have done to be more supportive. Feeling unsupported by one's husband was not statistically associated with reported depressive disorders (for MDD: $\chi 2=1.21$; N.S.). However, women who felt that their husbands could have been more supportive reported higher levels of psychiatric symptomotology. Among the 7 SST patients who met BSI criteria for "caseness", 4 women felt that their husbands could have been more supportive with regard to the reduction. This was true of only 1 of the 27 SST patients who did not meet criteria for psychiatric "caseness" (Fisher's Exact Test, p=.003). This finding was consistent with the previously reported link between marital dissatisfaction and higher BSI symptom levels.

While the majority of ST patients felt that their husbands had been extremely supportive during and after the procedure, this did not mean that the procedure was more emotionally difficult for women than for men. Several women reported that their husband had been more upset by the procedure. For example, one woman said that she was able to

cope with feelings about the terminated fetus by focusing on her ongoing pregnancy, while this was more difficult for her husband:

> "The bottom line is you've taken a life. I've dealt with it better than my husband. Because I'm still carrying a life."

Another woman felt that the medical staff was more sensitive to her feelings of grief than those of her husband, and that because of society pressures for men to be stoic that he had more difficulty working through his sadness and guilt:

> "We both left feeling that we'd killed two of our babies. I think it was harder on my husband because I was getting all the attention for going through the procedure and he was supposed to be the strong man. So I think sometimes the husbands get short shrift because they have to deal with their wives and their (wives') emotional issues around it, and they don't get any kind of emotional support that a pregnant woman gets."

Several women said that their husbands became upset while watching the procedure performed. Often the husband looked at the ultrasound monitor as the fetus was injected while the woman was unable to see or chose not to look:

> "The worst thing was my husband watched the screen. Here he had been so staunchly saying 'We *have* to [have the reduction].'
> And when I watched his face and he saw the fetus being demised, his jaw quivered and he turned away. That broke my heart. I will never forget that. It made me feel like we had done the wrong thing."

> "My husband said that at the moment of impact, the fetus moved almost like a reaction, like a spastic reaction to the trauma of the impact of the needle. Like a jolt, or whatever. I know that stuck out in his mind, that moment, and I was just glad that I didn't have to see it."

For one woman, her husband's distress about the procedure continued after the reduction, until she began to resent his grieving. When interviewed late in her third trimester she said:

> "One night my husband woke up crying and very depressed that we had done this. And I got angry.
> 'This is the last time I ever want to talk about this. We have two living babies we have to think about.'
> And from that time on he didn't really show me what he was feeling any more. Although I know he was hurting inside. I felt like he was blaming me for it. I felt like I was at fault in his eyes."

One of the Jewish Orthodox women in the sample admitted that her husband's disappointment that she had delivered girls had made her wonder whether she should have tried to carry triplets, even though her twins were born prematurely and her physician assured her that if she had tried to carry three babies that they all would have died.

When I first telephoned this woman's home, her husband asked me to find out from Dr. Timor what the gender of the three terminated fetuses had been. His request was impossible because no tissue is taken out of the uterus at the time of the procedure, and thus genetic testing cannot be conducted. Secondly, the procedure is performed before any external development of genitalia has taken place.

During my subsequent interview with his wife, she explained that she had conceived another quintuplet pregnancy several years before and had tried unsuccessfully to carry all of those babies to term. The quintuplets were

born at 20 weeks and died within an hour of delivery. All all five babies had been male. This time when she conceived quintuplets, rabbinical authorities recommended reducing to twins. But she and her husband are still haunted by the thought that the terminated fetuses may have been male.

After the reduction.

The results for this section were calculated for the 34 SST patients who had given birth or were still pregnant at the time of the interview, since women who aborted the entire pregnancy had a very different experience of the time period following the reduction.

SST patients reported a variety of reactions during the weeks and months post-procedure, but by far their greatest concern was losing entire pregnancy. A total of 91.2% of the women reported that the survival and health of the remaining babies was their primary concern during their second and third trimesters of pregnancy.

A commonly expressed fear was that somehow the reduction could harm the living babies:

> "I did worry a little bit about what happens after the reduction in terms of the physical part. I mean what happens to the sacs? Do they interfere with the other children? Things like that I did think about."

There were thoughts that somehow, something had gone wrong:

> "I worried, irrationally, about not reducing: that they thought a child was reduced and it wasn't."

Every pregnant woman has at least some worry about the possibility of birth defects or genetic problems, worries often eased by the positive results of amniocentesis. Unlike other pregnant women, however, several ST patients had the added fear that somehow the doctor had "gotten the wrong one:"

> "What if they took a healthy fetus and left one that wasn't healthy?" worried one woman.

As would be expected, anxiety was still a prevalent emotion among women after the procedure. During the first week post-procedure, 23.5% of SST patients felt "extremely" anxious, and 32.4% were "quite a bit" anxious. Only three women (8.8%) said that they were not at all anxious after the reduction.

Depression and sadness decreased markedly after the procedure. When asked to rate how they felt about the reduction during their remaining pregnancy, 32.4% said that they were not at all sad or depressed about the reduction, and another 32.4% were only somewhat sad or depressed. Only 3 SST patients were extremely sad and depressed about the selective termination once the procedure was behind them.

Most patients with a successful pregnancy outcome gradually felt less anxious as time went by and were able to enjoy their pregnancy and the anticipation of motherhood. However, a few women felt that their subsequent experience of pregnancy remained marred by memories of the termination.

One woman, who was hospitalized for preterm labor, felt that the selective termination had a long term negative impact:

> "It's taken a lot of the joy out of [the pregnancy].... And I feel a little ambivalent about the babies -- but I don't know if that's the infertility or that's just normal."

Some women continued to feel guilty after the reduction, and their inability to defend against these feelings after the reduction was a poor prognostic sign. A total of 11.8% of SST patients felt extremely guilty a week after the termination, and an additional 8.8% felt guilt "quite a bit." still felt guilty. Higher levels of guilt were associated with increased risk for MDD (Mann-Whitney $U=29.5$; $p<.05$). There was also a trend for guilt during the week post-reduction to be associated with BSI "caseness" (Mann-Whitney $U=51.5$, $p=.056$). Women who felt guilty found many aspects of the termination to worry about, such as what the fetuses may have experienced:

> "A big thought in my mind was how fetuses have pain. And I thought about that and I hope that there was no pain involved."

If a minority of women were haunted by guilt, feelings of relief were much more prevalent. Among the SST patients, 11.8% felt "extreme" relief during the week after the reduction, and 35.2% felt "quite a bit" relieved. To defend themselves against anxiety, a few women tried to deny the possibilility of future pregnancy complications. For example, one woman said that she was not at all worried

after the reduction because she had already "gone through so much" that she could not imagine anything else going wrong. At the other extreme, four women (11.8%) were not at all relieved during the week after the reduction.

Even though most SST subjects would be facing the challenge of caring for twins, 41.2% were not at all anxious about being a parent, and an additional 20.6% were only somewhat anxious. Most subjects were excited and pleased about the prospect of having twins. For women with long history of infertility and no prior children the twins would provide a ready made family. And, as many subjects pointed out, having twins would mean the attainment of the their ideal family size, and thus the expense and anxiety of further infertility treatment could be avoided.

In some cases, twins seemed to be a partial reparation for the narcissistic injury of infertility treatment and the termination. After having such an unusual and isolating problem, at last there was an aspect of the pregnancy which could be viewed positively:

> "I think that [the pregnancy] was more special in that there were two in there. And that's more unique. Instead of just one life forming in there, there was actually two. In that it made me feel a little nicer about it I guess."

Another woman expressed her excitement, which she tried to contain, about having two babies:

> "I tried not to, but I had my heart set on twins. I had my heart set on it right from when they suggested that we go down to twins. I had my heart set on it big time. But I tried not to because I knew that I could

> have a miscarriage from the procedure.... I was just trying to be really, really careful and keep myself from getting attached. But I think it was too late."

Attachment to the remaining babies.

As the previous quote illustrates, ST patients often tried -- with varying degrees of success -- to limit their attachment to the remaining babies during pregnancy. In some instances, this meant delaying usual activities such as telling acquaintances and co-workers about the pregnancy, and putting off discussions about what to name the children. Whether or not other people knew about the reduction, for the pregnant ST patient, every conversation about the coming babies could bring the loss to mind. As one woman explained:

> "I think that [the reduction] made me cautious in terms of my excitement level. It took me a long time to start telling people that I was pregnant. And in the beginning it was difficult to tell people that I was going to have twins."

As would be expected, women with a history of miscarriage were even more guarded in their excitement about the multifetal pregnancy. One woman, who had miscarried 4 times before the multifetal pregnancy, consciously tried to limit her emotional investment this time. She had two children already, ages 8 and 10, and although she was on complete bedrest during the first two trimesters of her pregnancy, she told her children that "mommy has a bad stomach ache" rather than tell them that she was pregnant.

This woman lost the twins in her 17th week of pregnancy. She still has not told her latency age children that she was pregnant -- in order to "shelter them from disappointment". This woman also denied having any fantasies about the reduced fetus:

> "There's no third child because there's no one or two in this case. And I specifically requested not to know the sex of the other two. I very much didn't want to attach any personal feelings to them, I wanted them to anonymous, sexless."

Even while women were trying not to become "too attached" to the remaining babies, they were confronted with evidence that there were separate lives within because of the repeated sonograms used to monitor their high-risk pregnancies. Some women mentioned that these sonograms were upsetting reminders of the selective termination, especially since the terminated fetal sacs could sometimes be seen on the ultrasound monitor. As one woman said, it was distressing to view the "little mummies attached to the placenta."

Reminders of the reduction were often defended against, as women tried to enjoy the pregnancy and anticipate their long-awaited motherhood. One woman tried to view her pregnancy as "normal" after the termination, but her defensive denial was unsuccessful:

> "I don't think that I've experienced anything that any other pregnant woman hasn't experienced. The only thing I knew is that I was carrying two dead babies. And I wouldn't say that bothered me extremely, but it bothered me a little bit.... What happens with the fetuses is that after the reduction they start to

> disintegrate. And usually you don't even see anything after delivery. But they didn't tell me whether they saw anything (after delivery). And I didn't ask because I didn't care to ask. I think my physician said if you see anything at all it's just like a shadow."

Other concerns during pregnancy.

Compared to women with normal pregnancies, the ST patients were sensitized to the possibility of physical problems during pregnancy, and comparatively preoccupied with the babies health and survival. However, patients in this study were less likely to report other concerns commonly expressed by pregnant women. For example, none mentioned concerns about their physical appearance, sexual relationship, future career plans, or many other issues normal concerns. Such worries may have seemed minor in comparison to fears of losing the pregnancy. When asked directly how much they were worried about their own health during pregnancy, none reported extreme concern, and 41.2% were "not at all" concerned. When asked about childbirth, 44.2% said that they were "not at all" or only "somewhat" concerned about giving birth. Only 4 SST patients (11.8%) were extremely concerned about delivery.

As would be expected among women who could afford expensive courses of infertility treatment, 41.2% had no concerns about financial matters during their pregnancy. Only two women (5.9%) were extremely concerned about financial matters.

While overall financial concerns were an issue for relatively few women, several patients mentioned how frustrating it had been to get reimbursed by their medical insurance companies for the selective termination. Hassling with the insurance companies was yet another reminder of the loss. For example, one woman felt that the paperwork involved, including numerous faxes and letters from her physicians, made it hard for her to "get on with" her pregnancy. Some insurance companies refused to reimburse women, saying that the termination was an elective rather than medically necessary procedure. As one woman angrily explained:

> "The insurance company wouldn't pay for it. The company called it an abortion. And my husband said 'How can it be an abortion? My wife is pregnant.'"*

Physical experience of pregnancy post-reduction.

After the reduction, several women noticed rapid and marked decrease in uncomfortable physical symptoms such as nausea. However, the procedure also occurred near the end of the first trimester, so it is possible that reduced symptoms were related to normal changes of pregnancy rather than the reduction. For some, the increase in physical comfort seemed to support their decision to terminate:

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*It is surprising that insurance companies do not enthusiastically support the procedure, considering that it often costs hundreds of thousands of dollars for perinatal care of premature triplets and quadruplets (Hobbins, 1988).

> "I almost feel like my body was kind of fighting the fact that I was carrying more than one or two. And I feel a lot better [physically] since I had the reduction."

Many ST patients did not have an easy pregnancy even after the reduction. A total of 69% of all 42 ST patients needed other special medical treatment during pregnancy. Bedrest was necessary for 47.6% of women. Among the women who needed bedrest, the mean number of days was 65.3, the median was 42 days, and the range was from a single day to the entire pregnancy (259 days). Bedrest was usually an added stressor.

Two women in the sample attributed their depression to the anxiety, discomfort and inconvenience of bedrest and other medical treatments during the third trimester. One of these women said much of her distress about being on bedrest was because her unavailability was hard on her two year old son.

Among the SST patients, 35.3% needed hospitalization before delivery, for a mean of 9 days. Of course, this was extremely anxiety provoking and stressful. But it also reconfirmed women's decision to have the reduction. For example, one woman was hospitalized for pre-term labor at 22 weeks and was put on anti-labor medications. She described how her attitude about trying to carry triplets had changed:

> "When you're two or three months pregnant you feel like there's really no reason why you couldn't have these babies. It's like 'My body could certainly carry three babies. Look, it's doing fine. But then you get to 20 weeks [with only two] and it's like 'Gee, I'm not so fine.' And then you get to 25 weeks and it's 'My God,

> this is awful.' I could have had the babies by now and I would have lost them all."

Two women in the sample, who for the purposes of this study were considered "successful" ST patients, actually had a more complicated medical developments. One delivered the non-reduced twins when she was just 25 weeks pregnant and one baby died a day after birth. This woman, interviewed shortly after she was able to bring her 4 month old daughter home from the hospital, denied having been depressed at any point during pregnancy and postpartum. She was focused on her relief at finally having her surviving infant at home.

A second woman spontaneously aborted one of the nonreduced twins but was still pregnant with the second when interviewed. She felt in limbo, and was distressed at the possibility of losing the entire pregnancy. She already had two older children, was in her late 30's, and said that the physical and emotional stress she had been through during this pregnancy had convinced her that no matter what the outcome it would be her final attempt to have more children:

> "I went through a lot; for the conception of a baby, the reduction of a baby, the miscarriage of another baby, and now trying to hold on to this baby. I've been through a lot. And I'm not through it yet. I could not go through this again. This is my last opportunity. If I don't hold on to this one, that's it."

Selective termination versus infertility.

Despite the many traumatic aspects of selective termination, 55.0% of both successful and miscarrying ST patients said that infertility treatment and worrying about

getting pregnant was more stressful, or much more stressful, than undergoing the reduction. (The woman who conceived triplets without medical treatment was not asked this question.)

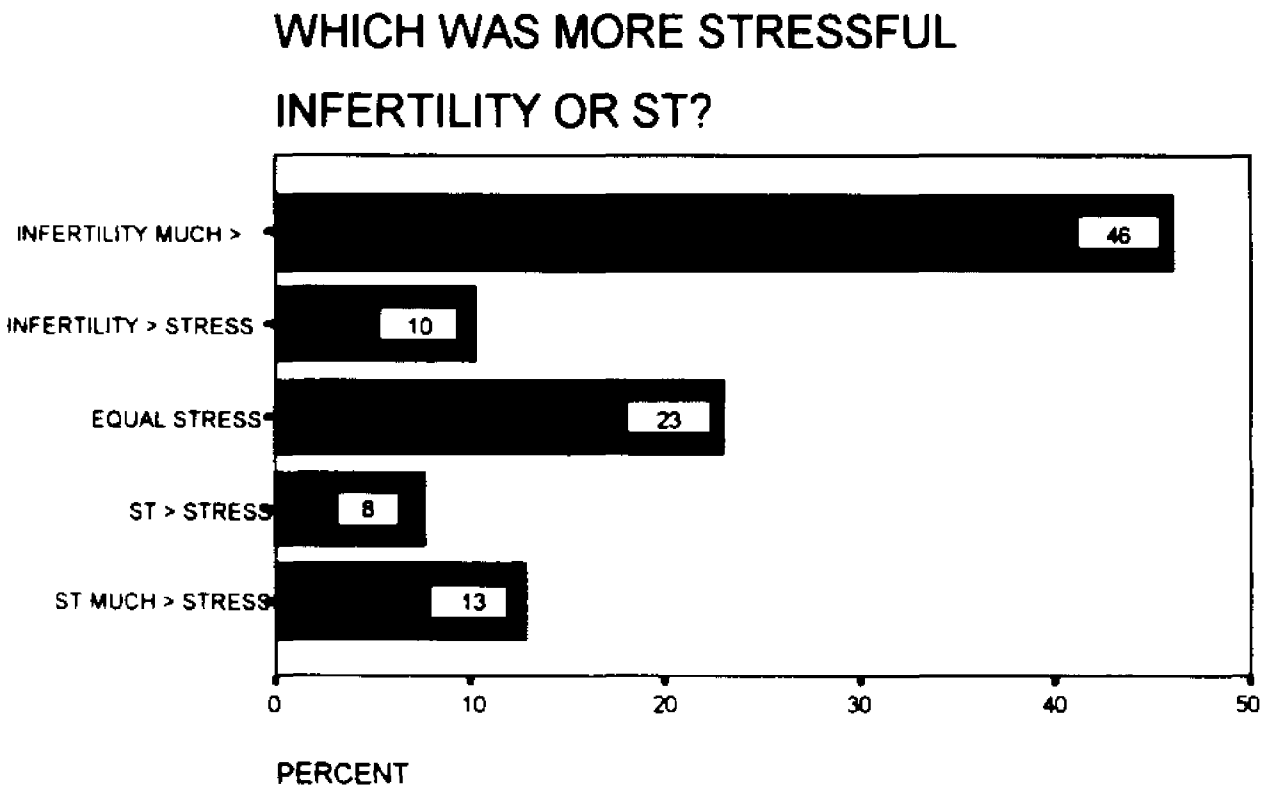
When women with prior birth children were excluded, 63.2% of the ST patients said that infertility treatment was more stressful than the selective termination. (See Figure R).

Some women found it hard to compare the two different types of stress: infertility was described as a long-term state in which the ongoing uncertainty was the most distressing aspect. On the other hand, the termination was perceived as a short-term crisis, intense but brief in duration. One woman pointed out that the perceived helplessness associated with infertility was more difficult to bear:

> "Infertility treatment is much more stressful. Because you have no control over that. Whereas with the reduction, that was at least something that we had under our control, that we could choose."

ST patient's experience of infertility was extremely diverse: some women had a clear diagnosis and quick resolution, while others had experienced extremely prolonged courses of treatment, sometimes without knowing the exact cause of their problem. However, length of prior infertility treatment was not statistically associated with whether or not it was perceived as more stressful than the multifetal reduction (Kruskal-Wallis 1-Way ANOVA=2.28; N.S.)

Figure R.


WHICH WAS MORE STRESSFUL
INFERTILITY OR ST?
INFERTILITY MUCH >
INFERTILITY > STRESS
EQUAL STRESS
ST > STRESS
ST MUCH > STRESS
46
10
23
8
13
0
10
20
30
40
50
PERCENT

Length of treatment is of course not synonymous with its stressfulness. For many of the patients, the reduction was another difficult decision in a series of complicated choices about infertility treatment. For example, the three women who underwent artificial insemination with donor sperm (AID) all found choosing that intervention a greater challenge than the decision to reduce the multifetal pregnancy. As one of these women said:

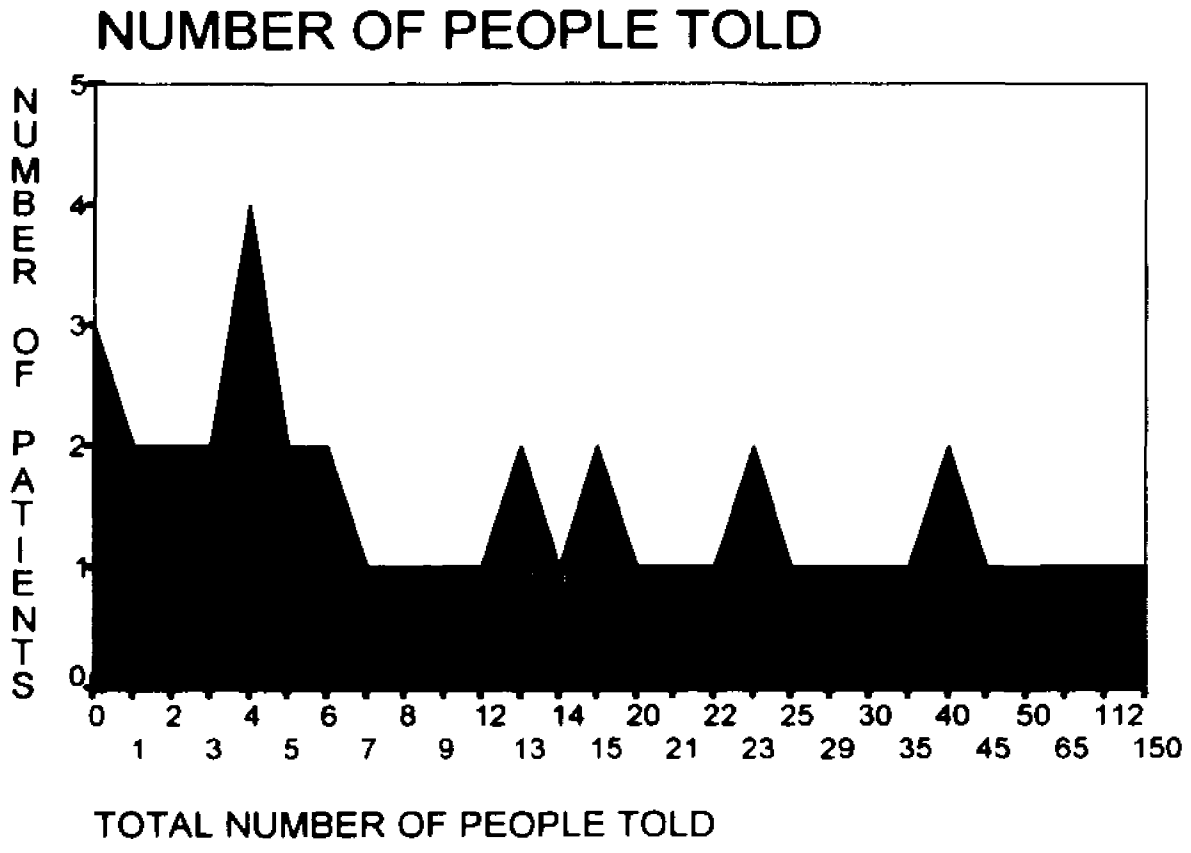
> "Making the decision to have the reduction was easy in comparison to choosing to have donor sperm. The reduction was the least stressful of all our fertility problems."

Issues of privacy and secrecy.

Excluding doctors and other treating medical personnel, the median number of people told about the procedure was 12.5 with a range of 0 to an estimated 150 people told! (See Figure S). Only 3 ST patients (7.1%) and their husbands had told no one about the procedure. These couples told no one because they wanted to be sure that the procedure was kept private, and they did not want others to judge their actions. One woman was afraid that if the procedure was not kept absolutely secret that it could be inadvertently disclosed to the children at some point. She and her husband did not even tell anyone they were pregnant until after the reduction.

Two other couples told only a single person, but most ST patients and their husbands told several people about the

Figure 8.


NUMBER OF PEOPLE TOLD
NUMBER OF PATIENTS
0
1
2
3
4
5
0 1 2 3 4 5 6 7 8 9 12 13 14 15 20 21 22 23 25 29 30 35 40 45 50 65 112 150
TOTAL NUMBER OF PEOPLE TOLD

multifetal pregnancy and the reduction. The majority of women (76.2%) discussed the selective termination with family members (median = 4.5; Range = 0 to 50). And 73.8% told friends about the selective termination (median = 3; Range = 0 to an estimated 100). Six ST patients told family but not friends about the procedure, and 5 told friends but not family.

Some women told family members that they were pregnant with triplets when the multiples were first diagnosed, but did not want to disclose information about the termination. Such women usually told people that they had lost some of the fetuses spontaneously.

Many women were careful to tell only people that they felt would be supportive. For example, one woman anticipated a negative reaction from her mother, so she withheld news of the multifetal pregnancy:

> "I didn't tell my mother I had four. Cause my mother's strongly against abortion. She would have said 'Carry them. If you die it doesn't matter. You've got to carry those babies.'"

Some women pointed out that once friends and family members were told, others found out about the procedure. When one woman was asked how many people she had told she laughed:

> "How many people did I tell, or how many found out? The news spread like wildfire."

Another woman was very upset that the news had spread and now wishes she had kept the multiple pregnancy and the reduction a secret:

> "Most of our friends were aware of it. Which I wish now I hadn't told them. At the time I think it was the kind of thing you're just in shock. You didn't think about it....We probably told four or five families but once we told them -- I mean it's a rare thing -- and now everybody knows. How many people should I tell you? I don't know, how many people live in [my town]? Probably thousands."

When asked if they planned to tell anyone else in the future about the procedure, 66.7% of the women said no, 23.8% said yes, and the remainder were uncertain. Some women said that they would only tell other couples in a similar situation. At least two women had already volunteered to speak to other women trying to decide whether to undergo the procedure.

One woman said that looking back, she wishes that peer support or counseling had been readily available to help her cope with feelings of isolation. She finds it much easier to talk about the reduction since the birth of her healthy twin boys:

> "The reduction doesn't bother me any more. Now I'll tell anyone that wants to hear it. I think I would have felt better before the procedure if I knew somebody that had it. I wouldn't have felt like I was the only one.
>
> I think that's why I tell a lot of people -- it's therapy. Because you're just getting it out. It's not like this big terrible secret you have. You'd be amazed at how many people are very supportive about it."

Although this woman says that she often discussed the procedure with people, she is "unsure" whether she will tell the twins about the selective termination.

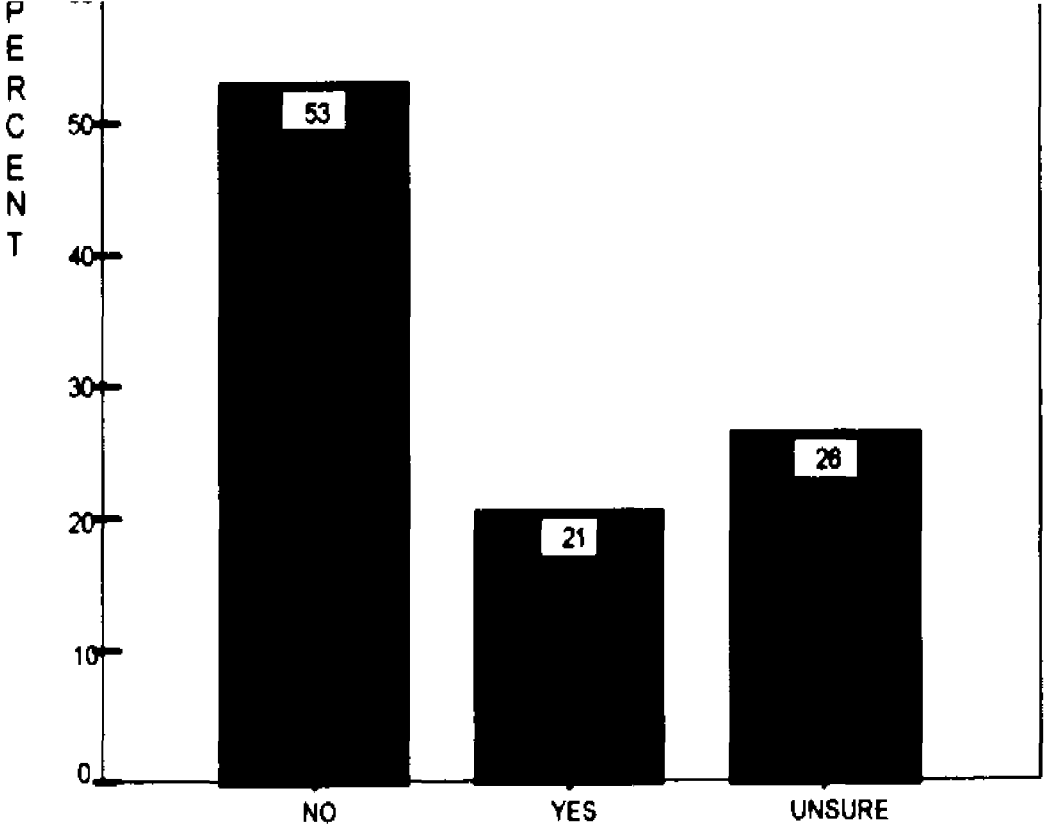
Deciding whether to tell the children.

Despite the fact that more than 90% of women had told at least a few other people about the selective termination, many of these women did not want the children born after reduction to know about it. Over half (52.9%) of the SST patients said that they do not plan to tell their children about the selective termination and 26.5% were unsure about whether to tell. (See Figure T). The women who do not plan to inform the children generally said that their was "no point" to doing so. While they could see no good reason for the disclosure, they could imagine possible disadvantages. As one woman who was unsure put it, telling the children might "load them up with a lot of survivor guilt."

Another woman, who reduced to one child for medical reasons, explained that she won't tell her child, but also revealed the fantasy that somehow he will have knowledge of the termination:

> " As far as I know it won't affect the children in any way. Unless there's some study out there that they inherently know about this and they're waiting for you to tell them."

Only a fifth of the women (20.6%) said that they would probably tell the children about the reduction some day.


PERCENT
50
40
30
20
10
0
53
21
26
NO
YES
UNSURE

Several SI patients said that they might [illegible]

not to tell the children about the reduction, but because they had told friends and/or family members, the women now felt as though they had no choice. When asked whether she would tell her children about the reduction one woman said,

> "Yeah, because I don't think I'm going to have any option. I don't want them to find out from someone else."

A few women mentioned adoption as a parallel situation in this context:

> "We're kind of concerned about what the kids will hear....It's like having an adopted child and everyone else knows but the children. I think you have to tell them eventually. I've thought about it a lot since getting the letter (to participate in the study)."

> "You know, it's like if he was adopted. You've got to tell him before other people tell him.... (Because) sometimes I didn't plan to tell people but it just comes out."

One woman, who had been seeing a psychotherapist before she conceived the multifetal pregnancy, was thankful for the support and confidentiality of that relationship. She started crying as she explained why she hasn't told many people about her reduction to a single fetus:

> "Because I don't want anyone telling the baby. Because I want to control that information and whether to tell him. Because you don't know how he's going to take it. And I'm sure he'll have an opinion about it and a thought that just by chance he happened to be the one that was furthest away."

Relatively few of the ST patients really want to tell the children about the termination. The following are examples of those women:

> "I'll probably tell the babies when they get older....I just think they should know how lucky they are and how special they are."
>
> "We've talked about whether we're going to tell these two about it when they get older. And yeah, we're going to tell them....It started out whether we were going to tell them that they were in vitro babies or not, cause a lot of people still think of it as a freakish thing. And we decided that we would tell them if we thought it was important enough at the time. They're important. They're special. They're the ones that are here."
>
> "We have a scrapbook we're keeping and we have a picture of the sonogram when there were three. And we don't say what it was, but that we took a trip to New York, and the next thing is a picture of the sonogram when there were two. We do plan on telling them. It's not something we're going to broadcast-- and we'll probably just tell them the same thing, that the doctors didn't feel that the other two were as viable."

Artificial insemination by donor (AID).

Three women in the sample had conceived the multifetal pregnancy after donor insemination. All of these women were more private about the AID than the ST. Only one thinks that she will tell the children that they were conceived with donor sperm:

> "I think that I could never go through life keeping that kind of secret in the closet, away from the children. Secrets are a horrible, horrible thing. A total lack of trust. One day we'll work on how we'll bring that up."

Another women is unsure whether she'll tell her twins about the reduction, but is sure that she'll never reveal that they were conceived via AID.

The third woman and her husband have not told anyone -- even the physician who performed the selective termination

-- that she's carrying an AID pregnancy. On the other hand, she estimates that she has told 50 family members and friends about the pregnancy reduction. Even though so many people know about the reduction, she says she will "absolutely not" tell the children about it. This couple also has an adopted toddler -- and "of course" are going to tell him that they're not his biological parents when he grows older. Thus the hierarchy of privacy for this couple is as follows: adoption becomes public knowledge; selective termination is judiciously revealed, but not to the child; and AID is kept completely secret.

Emotional experiences after birth.

After giving birth, SST patients were relieved and happy. When asked to rate their well-being during the 2 weeks after delivery, 70.6% of the postpartum subjects said that they were extremely happy, and the remainder were "quite a bit" happy. No one in the sample reported the onset of a depressive episode after birth. Any "baby blues" were mild: 35.3% of postpartum subjects felt "somewhat" sad or depressed during the two weeks after birth, the majority were not at all sad or blue.

Only 5 the 17 women who had already given birth at the time of the interview (27.8%) felt that the reduction had affected their feelings as a mother. And all 5 of these women said that the reduction had a positive effect on their

maternal feelings, because they valued their living children even more. This view of the children as special survivors is illustrated by the following comments of a woman who chose to reduce to a single fetus:

> "This is what they call the premium baby. Because he was so difficult to get and because he's the one who made it....It makes him more precious."

Although most women thought that the termination had no effect on their feelings as a mother, the experience of parenting twins was seen as having an large impact. In most cases, caring for twin infants reaffirmed the ST patient's decision to undergo the reduction. Many of the postpartum subjects commented on how much more difficult it was to care for two babies than they had imagined it would be during pregnancy. For example, one woman said that "on a daily basis" she thinks, "Thank god we only have two." Other examples follow:

> "Twins are hard. New mothers are exhausted. Their emotional state is not that great. It's really overwhelming.... People really have no understanding of how tough it is to try and meet the needs of two babies. Especially when you've wanted a child for so long and really want to do the best job possible."

> "You know the hardest thing about having twins, is when you pick one up and you don't pick the other one up -- feeling guilty. [Saying to yourself] 'Am I playing favorites?' and 'Why did I pick up this one and not the other one?'
> I can't <u>imagine</u> with four. You would <u>never</u> be able to spend quality time with one of them."

> "I don't think we appreciated how much work it would be, even though we already had a child. Twins are like four times having a singleton. For the first two months we were getting up 4 or 5 times during the night. I never got more than two consecutive hours of sleep."

Thoughts about not having the reduction.

Women were asked if they ever thought about what it might be like if they had not had the pregnancy reduction. The largest group of SST patients, 47.1%, reported thoughts that indicated relief. Many of these women were now parenting twin infants:

> "The first night we had the babies home and they were just going crazy every twenty minutes all night. I said to my husband, Look, honey, it could have been four. And he said, Oh, you're right, and it kind of made him feel better."

> "I thought about what it would be like (not to have had the selective termination) the other night when the twins were up all night.... There's never a moment when I say "Gee, I wish we had all four." If I had four they'd still all probably be in the hospital."

Thoughts that indicated regret were expressed by 20.6% of SST patients. These women most often mentioned stories they'd heard or read about the successful birth of triplets or quadruplets. As one woman put it:

> "A few weeks ago on the news there was a lady who gave birth to four and I wondered did I make the right decision."

Another 20.6% of the women gave responses which were rated as ambivalent. These women often expressed relief at having healthy babies, but acknowledged feelings of guilt or regret about the loss. Other answers coded as ambivalent

included contradictory comments. For example, one woman who delivered twins when just 29 weeks pregnant, considers it a "miracle" that the babies eventually came home healthy and with no known brain damage. Despite her premature delivery, she has not forgotten her ethical concerns about the procedure, and says she still thinks about the two reduced fetuses every day:

> "It's hindsight, but at least we know we made the right decision.But even to this day, you know, you read in the papers or see on the news how one woman just gave birth to quadruplets or quintuplets. And you always wonder if you had gone through with it how you would have done."

Among the 34 patients with a successful pregnancy, only 4 women (11.8%) denied having any thoughts about what it would have been like if they had not undergone the procedure.

Fantasies about the terminated fetuses.

When women were asked specifically if they ever had thoughts about the unborn fetuses, 88.2% of SST patients described fantasies. One common theme of these fantasies concerned the possibility of a different outcome. For example, one woman had initially planned to use a different physician who performs the selective termination procedure transabdominally rather than transvaginally. If the needle had been inserted from this different position, then a different set of fetuses would probably have been terminated. She said,

> "Living with the decision is difficult because it means going through life knowing that you've killed two children. And if I had had the procedure done the other way, the boys that I have now would have been the ones that went. And when I look at them, you always wonder what the other two were like. And you have to live with that."

Often, women's thoughts about the unborn brought up feelings of loss, and pain at being responsibile for the loss:

> "You know, I never was much a believer in God or heaven or anything, but when I think about this experience I feel that there are 3 souls up there, who I'll never know. And I feel very sad. That three of our children have been lost. And I don't feel the same way about the miscarriage I had before my son was born, because I feel that I had no control over that. But this is something that I took an active part in. And I just think about it a lot."

Sometimes external events brought back memories of the lost fetus, such as the experience of a woman who, while having her twins baptized, became "very upset" when she noticed a third space in the printed program for the church service: it looked as if a third baby should be listed. Another woman anticipated that she would always experience an anniversary reaction:

> "Like giving a child up for adoption, you still would think of it on the birthday."

Many women still wished that the procedure had not been necessary to undergo. One woman expressed a fantasy that medical technology would progress to the point that the loss of selective termination could transformed into a gain of surplus babies:

> "If they can reduce them now, you wonder if they can take them back out and save them for later. Wouldn't that be wild. If they could take it out and give it to someone who really needs it."

The most common thought that women reported was wondering about the gender of the reduced fetuses. Three quarters (75.0%) of SST patients reported wondering about whether the terminated fetuses had been boys or girls. Examples of women's thoughts about gender are as follows:

> "I used to think, what if I had a boy and a girl instead of two girls."

> "We're so fortunate that it's a boy and a girl and every now and then we think that we might not have had a boy and a girl. One of them might have died, and we might have two boys or two girls."

> "It would have been really nice to have triplets. I wonder what it would have been -- we just found out the sex of the babies -- two boys. But we're not telling anyone. So don't tell anyone!"

The next most common fantasy, mentioned by 28.1% of women, concerned the physical appearance of the unborn. Women wondered whether the reduced babies would have looked like their living siblings, like their parents, or other family members. For example, one woman said that she'd sometimes wondered "whether they'd look like my husband or me."

Another woman who had reduced to a singleton did so because among the triplets were a monochorionic twin set. When asked whether she ever thought of the two reduced fetuses she said sometimes had an image of "two little identical babies".

A total of 21.9% of women talked about how another baby would have increased their parenting responsibilities. The flavor of such comments has already been illustrated by previous quotes about the impossibility of giving enough time and attention to more than two babies.

A smaller percentage of SST patients, 15.6%, were coded as having fantasies about the personalities of the reduced fetuses. These were not questions about temperament, or specific personality traits, but musings about the loss of a unique and individual child. "What would the other one have been like?" wondered women.

Altogether, 12.5% of subects wondered about the impact of other fetuses on their pregnancy. For example, one woman continued to wonder what it would have been like to carry and give birth to triplets:

> "I've wondered how my body would have handled it. I've wondered what they would look like coming out."

A fairly large percentage -- 21.9% -- of women had fantasies about the impact of an additional sibling on their living children. Sometimes this took the form of wondering what it would have been like for the twins to have a third sibling and playmate.

Thoughts about the impact of the reduced fetuses on the living babies was a prevalent theme. Many women expressed the fear that somehow the non-reduced fetuses "would know" that another was missing.

> "Well, we [the woman and her husband] were just talking about whether the other two could be aware of a trauma... just whether there was any way they could know that something shocking had happened in the environment."

This woman's fantasy is couched in fairly technical, scientific-sounding terms. Most women's fantasies that the others would know were less intellectualized:

> "I worried that [the reduction] would somehow harm the other babies. I worried that the two who were left would feel like something was missing and that there should have been a third."

> "In the beginning the doctor thought that there were three and that one egg divided again -- so that maybe one set was identical. So I was worried about that too. I was thinking, you know how they say sometimes that identical twins have this kind of unconscious type thing between the two of them. I thought, 'What happens if they took one from the set of identical twins?' Would one always feel like he was lost or something was missing?"

> "At first I wondered did the other ones know that one is gone now -- did they accept that loss. Will they blame me. You know, will they say 'We had a brother or sister that isn't here anymore. What happened?'"

Reported frequency of fantasies.

When the women with a successful outcome were asked how frequently they thought about the terminated fetuses, 11.8% of women denied ever having thoughts about the fetus, while, at the other extreme, 17.6% said they thought about the terminated fetuses daily.

For many women, thoughts about the reduction faded over time. But several women indicated that their thoughts about the terminated fetuses had increased once the other babies

had been born healthy. As long as they were pregnant they had tried to ward off concrete fantasies, and these fantasies re-emerged after birth.

> "As soon as he was born, as soon as you have a concrete view of what you have, you think about what the other ones would have been like. You wonder what they would have looked like and their personality. I'm sure it is something that I'll always think about. But the comfort of having a healthy baby helps me deal with that."

Although a few women mentioned that they allowed themselves to think about the other fetuses more after birth, this was not found to be statistically significant. The frequency of such thoughts was not correlated with length of time between reduction and interview (Spearman r=.07; N.S.). Nor was the frequency of thoughts about the terminated fetuses associated with whether a subject was interviewed during pregnancy or postpartum (Mann-Whitney U=141.5; N.S.).

Regrets about the reduction.

Only one woman with a successful pregnancy outcome regretted having undergone selective termination. This woman felt coerced into the procedure and afterwards suffered a depressive episode which met criteria for MDD. She had made the decision to reduce after she had conceived 5 fetuses. On the day of the procedure, it was discovered that she was only carrying triplets, and she felt pressured by her husband to quickly decide to reduce to twins:

> "I felt railroaded into it. If I'd maybe had more information about triplets... I thought that there were very few that were carried and actually made it. I saw a perinatal specialist down here and he delivered three sets [of triplets] this summer."

Two other SST patients said that they were "uncertain" whether they would still choose to have the procedure if they could do things over. As mentioned previously, one of the Orthodox Jews in the study wonders if she should have tried to carry triplets.

An ST patient, whose interview data was not included in the statistical analysis because she was interviewed more than 2 years after the reduction, said that although she no longer regretted the procedure, she did feel remorse for a period of time after giving birth:

> "I saw two healthy kids and thought what if there were five healthy kids.... I felt like a murderer."

Regrets among women who miscarried.

Among the 8 ST patients who spontaneously aborted the pregnancy, 2 women regretted the procedure, and 1 woman was uncertain about whether she would still have the procedure if she could do things over. One UST patient who regretted the selective termination wished that she had aborted the entire pregnancy. She had never had fertility treatment, or difficulty conceiving, and had a child under one year old when she conceived the multiples. If she could do it again she "would just start over." Clearly, her lack of fertility

problems makes her perception of available options quite different from the other subjects.

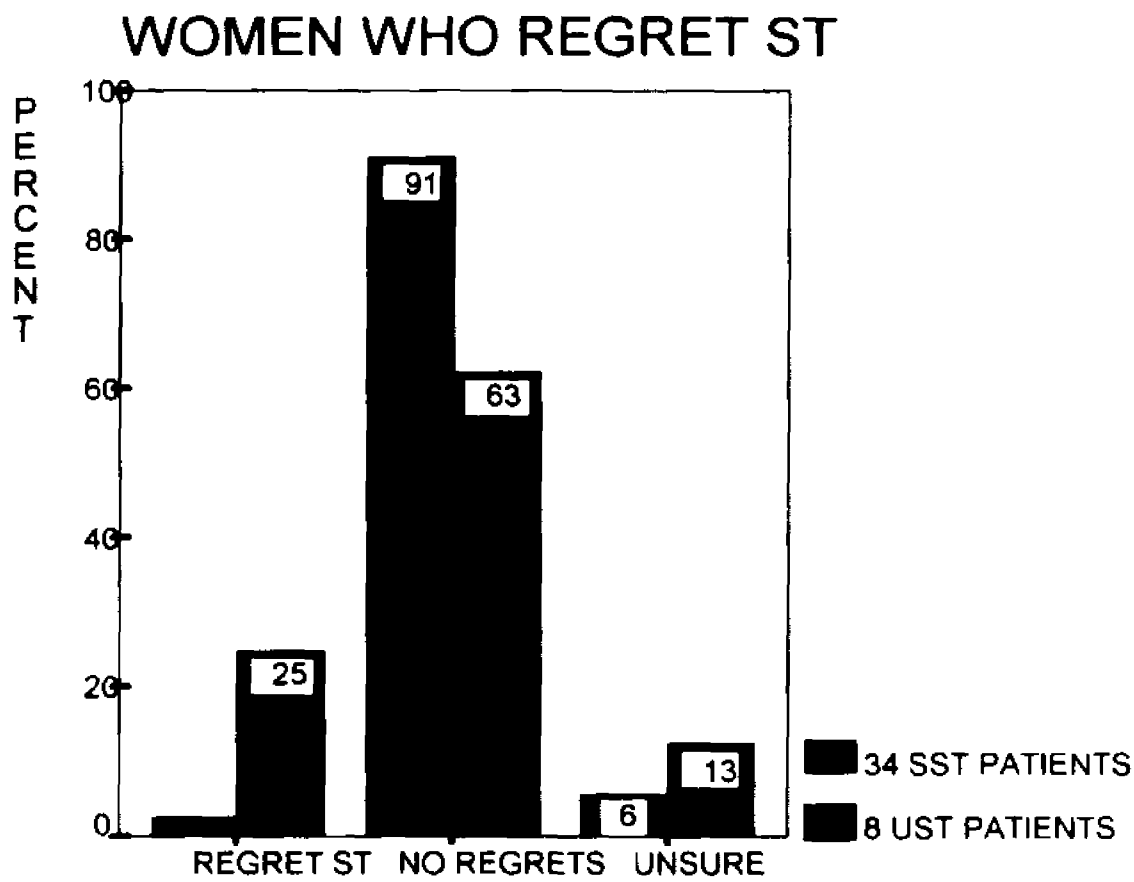
Among the UST patients, 3 attributed their spontaneous abortion to the selective termination, 2 thought that their subsequent pregnancy loss was unrelated to the reduction, and 2 were uncertain. (See Figure U for a summary of regrets among both SST and UST patients).

When the miscarrying patients were asked whether they ever thought about what it would have been like if they had not had the reduction, 3 said that they had no such thoughts, 3 women expressed ambivalence, and 2 expressed thoughts which indicated regret about the procedure, such as wondering whether they might have been able to carry triplets to term. In general, UST patients reported having fewer fantasies about the fetuses lost during selective termination, and tended instead to focus on the babies who had been lost spontaneously. For example, only one of the UST patients indicated fantasies about the gender of the reduced fetuses.

The majority of the UST patients made it clear that they had carefully evaluated the termination, felt that it was their best option at the time, and that they would probably do it again if faced with the same choices. As one woman put it:

> "I'm of the opinion that I was just in the unlucky ten percent....I never felt guilty for having the procedure, or regrets for having the procedure, just sadness. A kind of despair in a sense."

Figure U.


WOMEN WHO REGRET ST
PERCENT
100
80
60
40
20
0
91
63
25
13
6
REGRET ST
NO REGRETS
UNSURE
34 SST PATIENTS
8 UST PATIENTS

Only one woman was bitter and angry, and she was upset not about the mutifetal reduction but about a perceived lack of support from her physicians when she miscarried. She felt that her infertility specialist and Dr. Timor both acted as though they'd completed their jobs already and were unavailable to answer her questions:

> "I just felt like [Dr. Timor] did his thing and walked away. I felt like I went to this great big hospital and I got the same feeling that some poor girl would get if she went to an abortionist who never wanted to see her again."

Managing infertility treatment differently.

All 42 ST patients were asked whether with hindsight they would do anything differently in terms of the multifetal pregnancy. The majority (66.7%) said that even with hindsight they would still do everything the same way. On the other hand, 13 women (31.0%) said that they would have managed their infertility treatment differently, and the remainder were unsure whether they would have done things the same way. Many women felt that if they had more actively participated in decisions about their infertility treatment that the selective termination would not have been necessary:

> "I never would have gone forward with six eggs. I just think I would have educated myself more and been a more aggressive patient."

Women who were ambivalent realized that it was difficult to weigh the odds of multiples against no children at all:

> "In order to be safe you'd have to put back only two at each IVF cycle. And you'd really reduce your chances of the procedure working."

However, in few cases it was clear that treatment had proceeded with too many fertilized ovum:

> "I developed 26 eggs and they put 12 of them back in! If I ever go for IVF again I'm never going to let them put that many eggs in me again. Even if it takes 20 times. Because I never want to have to go through that embryo reduction again."

The need to be an educated patient and make one's own decisions during treatment was seen as crucial. A woman who said that she had never heard of the GIFT procedure she underwent wished that she had done much more research and limited the number of ovum transferred to her fallopian tubes:

> "A lot of the fertility doctors seem like they're just so happy to get you pregnant that they leave out a lot [of information]....There was a lack of communication very early on which could have kept the reduction from even having to be done. There was never a discussion of numbers. I mean, they knocked me out and then when I woke up my husband was there looking pale and he said 'They put in six.'"

Gratefulness for the reduction.

While only a small percentage of women regretted having undergone the reduction, many expressed gratefulness that it had been an option. Although there was no specific interview question about the topic, 12 of the SST patients

(35.3%) made a point of expressing how thankful they were that the procedure had been available. Many women in the study expressed these feelings at the close of the interview when they were asked if they had any final comments. Examples of such comments follow:

> "The reduction is a miracle -- we could not have dealt with triplets."
>
> "I guess I felt very thankful that I lived when you had the choice."
>
> "I just hope that other women will have this opportunity."

Chapter V

Discussion

Chapter V: Part I- Main Findings

ST does not lead to depressive disorder.

The selective termination of multifetal pregnancies does not appear to increase women's risk for depressive disorder or psychiatric symptomatology. Contrary to the main hypotheses of this study, SST patients and controls with a successful pregnancy outcome did not significantly differ in rates of Major Depressive Disorder (MDD), clinically significant depressive episodes, severity of reported depressions, or Brief Symptom Inventory (BSI) levels and psychiatric "caseness". The incidence of MDD in SST patients during the 9 months prior to the interview was 14.7%, the same rate as for S controls. Overall, on self-report measures of mental health status, the SST patients and the controls who had conceived after infertility evaluation appeared quite similar.

Furthermore, the mean levels of current psychiatric symptomatology among SST patients and S controls were similar to published norms for non-patient women in a community sample (Derogatis, 1982; 1992). There was no indication in this study that rates of depression were elevated in relation to other pregnant and postpartum

samples: the general incidence of depression in studies of postpartum depression ranges from 8.2% (Cutrona, 1983) to 14.9% (Kumar & Robson, 1984). In this study, only 8.8% of SST patients were currently depressed. No subjects in the study developed depressive episodes after giving birth.

The main finding, that selective termination does not generally lead to depressive disorder or long-lasting psychiatric symptoms, is similar in import to recent studies of the psychological effects infertility and childbearing. Until recently, it had been assumed that infertility, pregnancy, and childbirth were all stressors which increased women's risk of developing depressive disorders. These assumptions have been challenged in the past decade by studies which include appropriate control groups.

Contradicting the commonly held belief that postpartum women experience high rates of MDD, a prospective, controlled study by O'Hara, Zekoski, Philipps and Wright (1990) found that women during pregnancy and postpartum were no more likely to suffer from depression than their non-childbearing peers. While postpartum psychosis and time-limited periods of mild "baby blues" are frequent after childbirth, women were not found to be at risk for non-psychotic depressive disorder during this time.

In a similar vein, several controlled studies indicate that infertile women are psychologically similar to their fertile peers (Callan & Hennessey, 1989; Freeman, Garcia &

Rickels, 1983; Paulson, Harrmann, Salerno & Asmar, 1988). For example, recent, controlled studies (Downey & McKinney, 1992; Downey, Yingling, McKinney et al., 1989) show that women undergoing infertility evaluation and treatment are not at increased risk for depressive disorder, despite their subjective feelings of distress and disappointment about their infertility.

This study provides another example of the importance of a control group in determining whether or not a stressful reproductive event poses a risk for depression and psychiatric symptoms. The selective termination of a multifetal pregnancy does not appear to pose a long-term psychiatric risk in otherwise well-adjusted women.

The risks of miscarriage.

While this study suggests that selective termination does not put women at significant risk for mental health problems, the spontaneous abortion of a wanted pregnancy is strongly associated with depression. As hypothesized, both ST patients who subsequently miscarried the entire pregnancy, and control subjects who miscarried, were at high risk for depressive disorder. Consistent with other studies which have linked perinatal loss with severe grief reactions (eg. Neugebauer, Kline, O'Connor, et al., 1992; Friedman & Gath, 1989; Nicol, Tompkins, Campbell & Syme, 1986) in this study, all of the subjects who lost their pregnancies

reported depressive episodes afterwards. Both UST patients and U controls were significantly more likely to experience MDD than SST patients and S controls. In fact, the UST patients were 16 times as likely as SST patients to report an episode of depression which met criteria for MDD.

Thus a main finding of the study, at least from the perspective of descriptive psychiatry, is that the loss incurred by selective termination does not constitute a trauma of the same severity as the loss of an entire pregnancy. Successful pregnancy outcome was the strongest predictor of psychological well-being for subjects in this study.

ST as a distressing life event.

Although multifetal pregnancy reduction does not lead to higher rates disturbance on standardized mental health measures, for most women the procedure is experienced as a stressful and distressing event. As a decision to terminate a wanted baby, women in this study found the reduction emotionally painful. All the women in the sample were anxious about their pregnancy outcome, and the majority (69.0%) felt sad and depressed on the day of the procedure.

As hypothesized, rates of depression and psychiatric symptoms were significantly correlated with length of time since the medical procedure: the more recent the selective termination, the more likely the women was to be highly

symptomatic and depressed. Related to this finding, was the significant association between pregnancy and depression. SST patients interviewed while still pregnant were more than 6 times as likely as postpartum patients to report depressive episodes lasting at least a week. A total of 58.8% of pregnant ST patients reported depressions versus 17.6% of postpartum patients.

Thus, women's psychological responses to multifetal reduction are somewhat paradoxical. The procedure does not lead to increased rates of depression: but conversely, the more recent the selective termination the more likely a woman was to report a depression. Even more importantly, 61.5% of the SST patients who reported depressive episodes attributed their negative mood to distress about the multifetal pregnancy and/or the reduction.

On one hand, the vast majority of "successful" selective termination patients reported much less grief experienced than women who miscarried. Only one SST patient regretted having undergone the procedure, and 35.3% of subjects spontaneously mentioned how grateful they had been for the option to reduce. More than half of the women who underwent the procedure viewed it as less stressful than the uncertainty and disappointment of infertility.

On the other hand, a significant minority of women found the termination extremely upsetting. "Extreme"

feelings of sadness and depression on the day of the reduction were reported by 21.4% of the ST patients.

Selective termination was simultaneously perceived as a great trauma and a welcomed opportunity. Women wished that they did not have to take the life of a child they had tried so hard to conceive, but because the reduction prevented even less welcome alternatives -- such as the death or extreme prematurity of all the babies -- it was viewed as a positive option.

Chapter V: Part II - Risk Factors for Adverse Reactions

The unproven study hypotheses.

One possible explanation for the apparent contradictions in women's reactions to selective termination would be the identification of risk factors which make only certain women vulnerable to adverse psychological outcome. In addition to comparing the mental health status of ST patients and controls, a second goal of the study was to look for demographic factors associated with depression and psychiatric symptomatology. Infertility history and religion were two of the hypothesized risk factors, but both variables proved to be unrelated to mental health outcome.

Catholic ST patients were no more likely to be depressed or highly symptomatic than ST patients of other religious affiliations. And ST patients who considered themselves very religious were no more likely than their

less religious peers to report depressive episodes of high psychiatric symptom levels.

The wide range of experiences described during clinical interviews made it clear that each woman's religious beliefs, opinions about abortion, views about the ethics selective termination, and personal susceptibility to guilt and grief had enormous impact on whether or not she reported a depressive episode. But in this sample, such individual reactions could not be generalized on the basis of religion.

The only exception was the unanticipated finding that Jewish subjects reported significantly less difficulty in deciding to undergo the procedure. This finding may be related to traditional Jewish ethics and laws which differentiate between a fetus and a human child after delivery, and give the mother's health clear priority over that of her unborn child (Grazi & Wolowelsky, 1991). Also, the Orthodox Jewish women in the sample received direct permission from rabbis to undergo the procedure. Thus, highly religious Jewish women were relieved of the responsibility to choose. Overall, Jewish women were no more or less likely than other ST patients to report depressive episodes or elevated current symptom levels.

Contrary to study hypotheses, infertility history was not found to be a risk factor for adverse psychological outcome. The length and type of infertility treatment was not statistically associated with rates of depressive

disorder or psychiatric symptomatology. Many women in this sample had experienced protracted infertility workups, and treatments which involved repeated failures and disappointments. For a few, it was the final stress which led to a depressive episode. But many other women in the study with protracted infertility histories seemed able to focus on the end goal of healthy children, and these women were so happy to be pregnant that the selective termination was sometimes minimized as "just another medical procedure."

A third variable which was expected to predict mental health outcome was marital satisfaction. It was hypothesized that ST patients who reported being unhappy in their marriages would be at greater risk for depression and have higher symptoms levels. There was some support for the link between current psychiatric symptomatology and marital dissatisfaction. On BSI indices of Hostility, Paranoid Ideation, the Global Severity Index, and the Positive Symptom Total an inverse correlation was found between marital satisfaction and psychiatric symptomatology.

No significant association was found between marital satisfaction and depressive episodes. However, it must be kept in mind that 69.0% of women in this sample said that they were "very satisfied" in their marriage, and that an additional 28.6% of women gave their marriage the next highest rating. It is likely that most women who undertake the type of infertility treatments which lead to multifetal

pregnancy are in reasonably stable marriages. Infertile women in unhappy marriages may be less willing to pursue such expensive, time-intensive, and physically invasive medical treatments.

Risk factors: Unanticipated findings.

While most demographic variables were unrelated to mental health status after selective termination, one unanticipated risk factor was discovered: having prior birth children. SST patients who already had children when they conceived the multifetal pregnancy were at greater risk for depressive disorder. The 17 SST patients with prior birth children were more likely to report both minor depressive episodes and those severe enough to meet criteria for MDD. (A possible explanation for this finding will be discussed later in the chapter.)

Defensive styles rather than demographic variables.

With the exception prior children, demographic variables were not generally correlated with reactions to the reduction. The ways in which women responded to the multiple pregnancy and the subsequent reduction were based more on their idiosyncratic coping strategies and defensive styles than on demographic categories.

In this context, an important aspect of coping was whether the procedure was associated with conscious guilt.

Women who experienced severe and prolonged guilt about the procedure were more likely to report depressive episodes and psychiatric symptoms of clinical severity. Mild feelings of guilt before and during the procedure were normal, but severe self-recrimination after the termination was associated with adverse mental health outcome.

Anticipation appeared to be an especially helpful defense mechanism. Women who coped well with the procedure faced their doubts and ambivalent feelings beforehand, and were able to suppress negative thoughts afterwards: "Before the procedure we really questioned whether it was ethical," explained one Catholic patient. "Once the procedure was completed, I didn't look back."

Women who refused to think about the impact of the procedure beforehand sometimes had strong negative reactions afterwards. One woman who went from triplets to a singleton said:

> "I refused to think about or address [ethical concerns] until right afterwards. And that's when my head just went real weird on me.... I had this weird fear that there would be two healthy babies in there and those are the ones they terminated. I was afraid that they saved the only baby that was really sick or had Down's syndrome. This kind of stuff just kept coming into my head afterwards."

If anticipation and intellectualization were helpful before the procedure, suppression was a helpful defense afterwards. Women who were distressed at the news of multiples, felt saddened by the termination, and anxious about their pregnancy outcome, still fared well if they were

able to put the trauma behind them and focus enthusiastically on the remaining babies.

Only a few subjects stayed preoccupied with the loss, and were unable to repress feelings of guilt. The women who appeared to have a pathological reaction to the selective termination had characteristics in common with women who respond adversely to the elective termination of an entire pregnancy: such women were tormented by severe ambivalence about the procedure. In this study, as in the literature on abortion, long-lasting negative reactions were associated with extreme moral prohibitions against abortion, perceived coercion to undergo the reduction, and prior psychiatric problems (Adler, David, Major et al., 1992; Friedman, Greenspan & Mittleman, 1974; Romans-Clarkson, 1989). Due to the small sample size of this pilot study, variables such as coercion and underlying psychopathology were infrequently reported, and thus could not be statistically correlated with adverse reactions to the termination. The clinical evidence, however, was persuasive: 2 of the 3 SST patients who were currently depressed had a history of chronic depression. And the third SST patient who was currently depressed felt "railroaded" into the reduction by her husband and suffers ongoing regret that she reduced the triplets.

The paradox: Distress versus dysfunction.

The distinction in this study between distress and dysfunction is critical: selective termination patients are sad that they need to undergo the procedure, and generally find it emotionally difficult. However, most women cope well with the stress and are grateful that it helps them achieve their goal of having healthy children.

It is important to seek a theoretical understanding of the apparent contradictions of women's emotional reactions to selective termination. How can such a distressing procedure not be associated increased rates of depression? How is an unwelcome trauma so linked with thankfulness and appreciation? How are some women able to focus primarily on their perceived gains from selective termination, while others remain preoccupied with the losses involved? The following section of the discuss explores possible explanations for women's paradoxical responses to selective termination.

Chapter V: Part III - Unraveling the Paradox of ST

Leon's multimodal approach.

The four theoretical modalities which Leon (1990; 1992) has used to understand women's reactions to perinatal loss can also be applied to understanding reactions to selective termination. As described in the Literature Review, these

four psychoanalytic frameworks are development, drive, object relations, and narcissism.

A developmental perspective.

From the perspective of adult development, selective termination permits the woman to attain her goal of motherhood. Conceiving, carrying, and giving birth to a healthy, biologically-related child was such a powerful motivation for women in this study that a successful pregnancy outcome often overrode the negative aspects of the reduction. Insofar as selective termination helped women become mothers it was perceived as a positive event which facilitated a central life goal. As one woman put it:

> "My reaction was positive in that at least I felt it was a hope, a way to keep part of this pregnancy intact.
>
> I was fearful about it. I was worried about what was going to happen to the remaining babies. I wondered about whether the babies that would be demised would be capable of feeling pain. I had mixed thoughts. But putting them all together they were more positive than negative."

As infertility patients, both subjects and controls in this study already were concerned that they might not have the children they desired. Almost all of the subjects had been willing to undergo emotionally stressful courses of medical treatment in order to conceive. As has been pointed out in the literature on infertility (Edelmann & Connolly, 1986; Kraft, Palombo, Mitchell et al., 1980; Menning, 1980; Seibel & Taymor, 1982) childless fertility patients often

feel inferior to other women, and developmentally "out of sync", as they are "left behind" their childbearing peers. The strength of the psychological need to experience a successful pregnancy, to parent one's biological offspring, to feel a part of the community of parents, and to enter the stage of generativity via motherhood, helps to explain why 63.2% of the previously childless women in the sample felt infertility and worrying about getting pregnant had been more stressful than the multifetal reduction.

When the multifetal pregnancy was diagnosed, many women did not at first focus on the physical dangers of their situation because they were so relieved to finally be pregnant. As one woman put it:

> "When I first found out I was just glad that they were there and growing and with heartbeats. And the fact that there were four was superfluous at the time."

Achieving the developmental goal of motherhood remained a focus after conception. Most subjects' distress at the news of the multiple pregnancy was due to the risk of extreme prematurity posed by so many fetuses. Several women said that they would have liked to parent three or four infants if the babies' survival and health could have been guaranteed. Almost three quarters (71.4%) of the ST patients said that the primary reason they underwent the procedure was to try and increase the chances that healthy babies would be born.

The majority of SST patients credited selective termination for their attainment of motherhood. And because it improved their chances of achieving this important developmental goal they felt thankful for the "miracle" of the reduction. A developmental perspective helps us understand why more than a third of the ST patients spontaneously expressed gratefulness that the option had been available, and why only one patient with a successful pregnancy outcome regretted the procedure.

A developmental perspective may also explain why women who already had biological children were significantly more likely to report depressive episodes, and were significantly more distressed when the multiple pregnancy was diagnosed than their childless peers. Having already attained the developmental goal of motherhood, women with prior children had "less to gain" from the multiple pregnancy. Although losing the multifetal pregnancy might prevent them from attaining their ideal family size, and keep them from providing siblings for their living children, they had already experienced pregnancy and parenthood. As one woman put it:

> "I guess I had sort of a different aspect because I had a child already. As opposed to the majority of people who go through IVF who don't have any children. In a sense they may be more willing to go with the multiples. Whereby, already having one, and knowing what it entails, the thrill wasn't exactly there any more for me."

With less to gain from a successful pregnancy outcome, the ST patients with previous children were more likely to focus on negative aspects of the selective termination.

A developmental perspective also elucidates the finding that 6 of the 8 ST patients who reduced to a single fetus for non-medical reasons already had birth children. The welfare of the older child -- who was already known and loved -- was a motivating factor in the decision to reduce to a singleton. Also, having previously cared for an infant, these women could more vividly imagine the stresses that twins would bring. As one woman who reduced to a single fetus said:

> "It would have been a whole different story if I didn't have a toddler at home. I think I would have had the reduction [of triplets], but by one. I would have had the twins if I didn't have my daughter at that age where she's getting into everything and she's a real handful.... You have no idea what it's like to be a mother until you have a baby.... I knew what I could handle. So Thank God for reductions."

The strength of the developmental need to conceive, carry, deliver and parent a biological child was poignantly described by one of the women whose quest was unsuccessful: this women, who had already adopted two children, had been undergoing infertility treatment for over a decade when she conceived the triplet pregnancy. Because of a congenital uterine malformation, physicians advised her to reduce to a single fetus. The selective termination was successful, but later in pregnancy the amniocentesis results indicated that the remaining fetus had genetic abnormalities. With many

doubts and great emotional pain, the couple decided to abort the pregnancy during the second trimester. Despite feeling "somewhat bitter and more saddened" by the tragedy of her situation, this woman had no regrets about the reduction. And she planned at some point in the future to resume infertility treatment:

> "Each part of infertility is so awful that whatever part you're going through seems like it's the worst. Until you get to the next part and you see how bad that is. But I would say that we would do whatever we had to do to have a healthy child. And if that would be another fetal reduction, and that was what we had to do, then it would sadden us again to have to do it. But not enough to keep us from trying."

The main study finding, that the trauma of selective termination does not lead to higher rates of depression, is a testament to the strength of women's developmental motivation to parent healthy, biologically-related children.

Drive theory and selective termination.

A drive theory perspective of pregnancy focuses on both biological influences and unconscious conflicts. From a physical point of view, selective termination results in a decrease of the extremely high levels of hormones associated with the multifetal pregnancy. Among the ST patients who had been pregnant before, and who thus had a reference point, 57.1% thought that they had been especially ill and tired during the first trimester because of the multiple pregnancy. Several women noted that they experienced

physical relief within days of the multifetal reduction. If intrapsychic issues during pregnancy are fueled and shaped by biochemical changes, then the selective reduction may have eased the intensity of women's hormonally influenced experience of pregnancy.

This is not to say that the pregnancies proceeded uneventfully post reduction. In addition to the termination, 69.0% of ST patients needed other special medical treatment during their pregnancy. And almost half were on bedrest, and/or hospitalized, to try to prevent premature delivery.

Theories of direct links between physical changes and specific psychological states during pregnancy are still speculative. Perhaps more relevant to this study, are psychodynamic views about common unconscious conflicts during pregnancy, views which have evolved from the treatment issues of pregnant women in analysis as well as quantitative studies. From Deutsch (1945), Benedek, (1959) and Bibring (1959), to more recent theorists, pregnancy has been viewed as a time during which intrapsychic issues, especially conflicts about a woman's early relationship with her own mother, are intensified and renegotiated. Especially if a woman's earliest experience with the maternal object was ambivalent (Lester & Notman, 1988), or if oedipal issues were unresolved (Ballou, 1978; Deutsch, 1945) a woman may fear that both she and her baby will die.

Psychoanalysts have postulated that every pregnant women, no matter how much she desires pregnancy and motherhood, has unconscious conflicts about pregnancy, and unconscious antipathies towards the unborn as she struggles to renegotiate and resolve underlying issues of separation and individuation(Pines, 1982).

In fact, until recently, many psychoanalysts attributed infertility and miscarriage to unconscious wishes to avoid pregnancy and motherhood (Benedek, 1952; Pines, 1982). (Fortunately, this pattern of blaming the victim is becoming less common as physicians become better able to determine subtle physical causes of infertility and perinatal loss.)

Analysts who do not believe that unconscious hostility can prevent or end pregnancy may still believe that each woman harbors ambivalent feelings about her coming child. Even theorists who reject a drive model, in favor of a motivational system based on the primacy of interpersonal relations, may still point out the normalcy of being ambivalent about the changes which childbearing will bring to a woman's body, career, marriage and other social relationships.

If at least some ambivalence about pregnancy is to be expected, and unconscious hostility towards the fetus is normal, then selective termination may be viewed as the fulfillment of a warded-off and unconscious wish to be rid of the life within. The loss of one or more fetuses in a

multifetal pregnancy may also be experienced as punishment. As Leon (1990) points out, a woman may interpret pregnancy loss as retribution for her prohibited oedipal strivings. A drive perspective helps us better understand the intensity of both conscious and unconscious feelings of guilt connected with the reduction.

The most obvious evidence that selective termination was perceived as a hostile act against the fetuses was the frequency with which women spoke about the procedure as "killing" or "murder". Almost a third of the ST patients used this kind of terminology when talking about the reduction. For several women it seemed important to acknowledge their responsibility in taking the life of a child, so as not to minimize the seriousness of the act.

Speculations about subjects' unconscious processes are presented as tentative hypotheses. This study focused on conscious reactions to pregnancy reduction, and was conducted via a single telephone interview, so it does not purport to examine women's experiences in the in-depth manner which would be possible in psychotherapy or analysis. Yet even with such comparatively superficial data, the interviews still contain many examples of guilt, ambivalence and even hostility about the terminated and non-terminated fetuses.

Almost half of the ST patients said that they experienced no guilt about the reduction, even on the day of

the procedure. However, several of the same women who denied feeling guilty, and said that the actual medical procedure had been "fine", sometimes belied their matter of fact attitudes with subtle indications of suppressed guilt.

For example, guilt feelings were sometimes transformed into a fear of external retribution. Some women voiced conscious fears of being "punished by God". Other women were afraid to tell friends or family members about the procedure because of fears that they would be judged. Two women who expressed the fear -- which they perceived as "unrealistic" and "paranoid" -- that operation rescue, or another anti-abortion group -- would find out about the reduction and come after the women and their families.

Women's fantasies about the terminated fetuses sometimes reflected feelings of projected guilt. A surprisingly common fantasy was that the terminated fetuses or the remaining babies might somehow "know" about the termination and "blame" their mothers for the loss. For example, one woman said:

> "At first I wondered did the other babies know that one is gone now -- did they accept that loss. Will they blame me. You know, will they say 'We had a brother or sister that isn't here anymore. What happened?'"

There were no specific questions about dreams during the course of the interview, but three women spontaneously reported having upsetting dreams which they associated with the termination and which may have reflected guilt feelings. One woman, who said that her nightmares were the worst part

of her pregnancy, had recurrent dreams that her baby had no fingers or toes. Dreams about possible birth defects are common when women are pregnant, but for this woman a normal fear of deformity and loss took on a special and frightening significance in the aftermath of the intrusive medical procedure.

Another woman was extremely distressed by dreams in which the terminated fetus, who sometimes appeared as a boy and sometimes as a girl, "confronted" the woman and demanded to know "What happened to me?"

A third woman, after giving birth to healthy twins, had a dream that she could "win back" the two terminated fetuses:

> "I was at a carnival, and if I guessed the weight of the other two babies I could have them back."

This dream seems to reflect her concerns about the randomness of a procedure in which half of the babies she had conceived lived and half died. It may also indicate a feeling of responsibility for the fetal deaths, that somehow her inadequacy was responsible for the loss. (For what mother does not know the precise weight of her newborn children?)

Unconscious conflicts which were created or exacerbated by the selective termination may have been more pronounced for women who reduced to a single fetus. For example, a women who reduced from twins to a singleton for non-medical reasons strongly asserted that she felt no guilt or regrets

about the reduction. And yet, once her baby was born, she developed the fantasy that he might not be her own. She thought that the baby had none of her facial features and said, "He looks sort of unusual, like he might not be my son".

This woman would have preferred a girl, since she already had a son when she conceived the twin pregnancy. The child she gave birth to was not her ideal gender, nor did the child reflect her narcissistic needs by looking like her.

Giving birth to a child who "might not be my son" may reflect the woman's unconscious need to be punished for terminating one of her twins. On the other hand, the fantasy may be more closely connected with the process of conception via in vitro fertilization. It is only with the advent of ART therapies that is has become biologically possible for a woman to give birth to a child who is not genetically her own. Perhaps this woman gave voice to a fear held unconsciously by many in vitro patients: that somehow the doctors implanted the wrong fertilized egg and that the child is in fact not related to its mother.

When young children realize that their parents are far from ideal, they may develop the fantasy that they were adopted (Burlingham, 1945). Perhaps the new infertility treatments further stimulate the development of a parallel parental fantasy that "this is not my child." A mother's

real and inevitably imperfect child can never completely meet all of her expectations and needs. The screaming, unsoothable infant may always look "sort of unusual, like he might not be my son" compared to the idealized infant she has carried during pregnancy.

Selective termination may make normal, though often suppressed, disappointments more vivid. The discrepancy between the idealized and actual child continues to exist in the form of the unborn, terminated fetus who remains potentially perfect. Splitting has a concrete focus. One woman gave voice to the fantasy that the ideal child was terminated, while she was left taking care of the imperfect child. When one of her twin infants cried through the night, she sometimes wondered whether the doctor had "made a mistake":

> "I used to look at my daughter when she was bad and think 'What if the doctor had left a different one?'"

This was the only woman in the sample who gave voice to the fantasy that the doctors mistakenly took the "wrong" fetus -- but such thoughts may be too socially unacceptable to reveal, or to personally unacceptable to allow into consciousness. Several did have a version of this fantasy during pregnancy when they worried that the physician had terminated a healthy fetus and left a deformed and abnormal child.

In at least one instance, a women who denied all guilt feelings became symptomatic in other ways. This woman who

chose to reduce from triplets to a singleton and developed phobias after she spontaneously aborted the remaining fetus. Shortly after her miscarriage, and for the first time in her life, she became preoccupied with the possibility of car accidents, and became afraid to travel on airplanes. As she described it: "I've had problems with fear." She found herself dwelling on news accounts of tragedies, such as people dying in fires. She became afraid of that her two living children and her husband would die or somehow be taken from her. Most of all, she worried about her own mortality:

> "I thought about death a lot. I was convinced at one point that I was going to die. I was getting chest pains and heart pains. And hyperventilating, and I couldn't catch my breath. I was afraid that I was going to drop dead of a heart attack or something and leave my children and my husband with nobody. ."

This woman declared that she felt "no guilt" about the reduction. However, her development of phobias after losing the remaining fetus may be seen as an unconscious projection of disavowed feelings of helplessness, grief and rage. Unconscious guilt may have been transmuted into fears of retribution for the termination.

To summarize, from a drive perspective, selective termination may symbolize the enactment of an unconscious wish to be rid of the pregnancy, may intensify guilt about any hostility towards the fetuses, and serve as a metaphor for ambivalence about the pregnancy. If the reduction resonates with unconscious wishes and fears it may intensify

the normal conflicts of pregnancy, and make it more difficult for women to work through those conflicts and negotiate the transition to motherhood.

An object relations perspective.

From an object relations perspective, the selective termination pulled women in contradictory directions. It both increased their awareness of the separate lives growing within their bodies, while motivating them to remain detached from the babies within.

A major emotional task of normal pregnancy is to develop an attachment to the fetus as a separate individual. In the case of ST patients, the external pressures to view the fetuses as human individuals were especially vivid. Even before their multifetal pregnancies became physically apparent, the need for several early sonograms bombarded the pregnant women with visual proof that they were carrying babies. As one woman said:

> "It was horrible. I went in and I hadn't had a sonogram in a long time. At 10 weeks you could see hands and heads and things moving around. And suddenly you see three babies."

While concrete evidence that they were pregnant was unavoidable, at the same time, ST patients were motivated to minimize their attachment to these babies. If women allowed themselves to confer individual human status to the fetuses, then their post-reduction grief would be intensified. If regrets about the loss could not be suppressed, then intense

mourning might impair the women's ability to focus on the remaining children. From an object relations point of view, women were faced with a complex challenge: to avoid cathecting the terminated fetuses, while remaining emotionally invested in the pregnancy.

This was a difficult task for many. One way of coping was to try to ward off any attachment to the pregnancy until well into the second trimester when the threat of miscarriage was reduced. One woman explained how she tried defend herself against possible disappointment by not considering herself pregnant:

> "The main way [the selective termination] affected things was that I didn't acknowledge to myself that I was pregnant until a few weeks after the reduction when it seemed like it had gone O.K..
>
> I knew I was pregnant, but I definitely didn't want to admit to myself that I was pregnant. Once I knew that there was four I was concerned that there was going to be none. I kind of thought 'Well, we may have to go through the fertility stuff again and try again.'
>
> But then the reduction was successful and everything was going O.K.. And now I was finally pregnant."

Anotner way of coping with the selective termination was to deny individual human status to the reduced fetuses. For instance, one woman managed to deny that she was seeing identifiably human forms on the ultrasound monitor:

> "I can't say that I would even call them fetuses when I step back and think about it. I mean I was 8 1/2, 9 weeks pregnant. They looked like a kidney bean to me."

Other women expressed their need to defend against grief by viewing the fetuses as biological tissue to be eliminated, instead of beloved children to be killed. The

comments of two women indicate a great struggle to stay detached. Both were unable to consistently maintain their emotional distance:

> "You momentarily feel sad because you have four potential children and two of them have to get the bullet. And you just have to get on with it and tell yourself, 'They're not children. They're a bunch of cells.'"

> "If you just think of them as a little piece of me, and a little piece of my husband, put together, it's pieces of us. But when you think of them as babies, or people, or potential, its just real, real different."

Perhaps to avoid guilt and to reduce feelings of grief, women who miscarried the entire pregnancy often vigorously denied any attachment to the terminated fetuses. They mourned more intensely for the non-reduced babies who were lost. One woman explained how she differentiated between the termination and the miscarriage:

> "I rarely think about the two terminated fetuses from the reduction. We knew the sex of the third baby. He was a boy. And we had genetic testing done and he was genetically fine. And I do think about that baby as a person. I never gave him a name or an identity. But I do think about the baby. But not the other two. I never gave them the rank of person."

Not all women approached the perinatal loss as distinct from the reduction. One ST patient tragically developed problems after a routine amniocentesis and delivered stillborn twins. She had originally conceived quadruplets, and when asked if she had ever had any thoughts about the terminated fetuses, she said:

> "I got to meet one of them. When I was in labor [with the stillborn twins], a little tiny fetus came out as well."

From an object relations point of view, the psychological task necessitated by the selective termination may be similar to that faced by women who lose one in a set of twins or triplets after birth. To be able to mourn the loss of a 'potential' child, while allowing oneself to become emotionally invested in the living child or children, is an emotionally difficult task of great psychological complexity.

Most women in this sample were impressive in their ability to enjoy their pregnancies and to develop relationships with their babies in utero by the third trimester of pregnancy. The women who had already given birth expressed relief and delight in their new children, even though most mothers were exhausted and overwhelmed by newborn twins.

For most women, attachment to the living babies did not prevent them from acknowledging the loss incurred with selective termination. Three quarters of the SST patients were able to acknowledge and share their fantasies about the terminated fetuses. These women could allow themselves to wonder, without becoming obsessed, about their unborn children. They wondered whether the other fetuses would have been boys or girls, whether they would have looked like their siblings, and how the family would have been different with another baby.

Women sometimes imbued their mental representations of the fetuses with fully developed human qualities. For example, one woman imagined the terminated fetuses as children complete with definable feelings and opinions:

> "Sometimes I think they might be in heaven. I hope they're not mad at me. Because I just couldn't [take care of four]. I couldn't. And sometimes kids understand and sometimes they don't. But I like to think that they wouldn't be mad that I couldn't do it."

Vivid images of the fetuses as human individuals with the capacity for emotional and physical responses was often upsetting to women. A few women mentioned their hope that the fetuses did not feel physical pain during the termination. One woman said that at the moment when the needle was inserted into the fetal heart, "I could hear a baby crying in my head."

Clearly, each woman's experience of the selective termination and her subsequent way of coping with the psychological tasks of pregnancy and new motherhood were shaped by her history of interpersonal relationships and internalized object relations. From the perspective of Adult Attachment theories (Ainsworth, 1989; George, Kaplan & Main, 1984; Main, Kaplan & Cassidy, 1985) one might speculate that the women who curtly reported that the procedure was "fine", that they "never" thought about the reduced fetuses, and had felt "no guilt" whatsoever, might have generally "detached" and "avoidant" strategies for dealing with attachment issues.

By the same token, women whose highly charged descriptions of the procedure were replete with unclear contradictions, and who were overwhelmingly preoccupied with thoughts of the terminated fetuses, might be found to have a history of "ambivalent" attachments to their own caretaking figures (Main, Kaplan & Cassidy, 1985). Obviously, this study cannot begin to answer such questions about the Adult Attachment status of its participants. But each woman's earliest object ties to her own mother, and her current internal representations of her ability to engage in mutually dependent, nurturing relationships, had an impact on her reactions to selective termination.

Pregnancy is generally viewed as a time during which women renegotiate their relationships with their own mothers (eg. Leifer, 1980; Lester & Notman,1986; 1988; Pines, 1986). Such a renegotiation takes place both consciously and unconsciously, with real impact on ongoing interactions in the present, and on intrapsychic levels developed in the past. Although this study did not focus on women's views about their relationships with their own mothers, aspects of the adult mother-daughter relationship were sometimes mentioned spontaneously. For example, one woman felt that she had to keep the procedure secret from her judgmental mother:

> "I didn't tell my mother I had four. Cause my mother's strongly against abortion. She would have said 'Carry them. If you die it doesn't matter, you've got to carry those babies.'"

This woman imagined that her unborn fetuses would have more value than her own life to her mother. It is interesting to note that this woman reduced to a single fetus, in part because she was afraid that she wouldn't have the emotional resources to handle the demands of more than one baby.

From a symbolic point of view, an interesting coincidence occurred in the lives of two subjects: Two interviews were not included in the quantitative section because they were conducted 2 years after the procedure. In both cases, the reduced pregnancy was from triplets to twins and both women had a successful pregnancy outcome. Within a year of delivering the healthy twins, both women unexpectedly became pregnant without infertility treatment and had a third child. In effect, both of these women ended up parenting three infants in spite of the reduction. One might speculate that there was an unconscious need on the part of these two women to replace the terminated fetus, perhaps reparation for the loss and atonement for the guilt-inducing act.

Narcissism and selective termination.

Overall, women experienced selective termination as a narcissistic injury. The reduction was one more thing which had gone wrong with their body and their life. And because the need for a reduction almost always occurred after

infertility treatment, women undergoing the procedure were already vulnerable to lowered self-esteem, impaired body image, and concerns about their femininity related to their problems conceiving (Downey 1991; Downey & McKinney, 1990; Mathews & Mathews, 1986; Mazor, 1984).

One subject, who was suffering from an ongoing depressive disorder of several years duration, vividly described her despair over the narcissistic damage incurred by her prior infertility treatment and the termination:

> "Right now I'm concerned about my psychological well-being.... I think it's somewhat connected with the reduction. Not totally. I think it's connected to the fact that I went through a lot of guilt, and ups and downs, related to trying to get pregnant the second time. I felt guilty that I was not able to give my son company [of a sibling], that my husband was not going to have any more children, that I was not an adequate person, that I had to put myself through all that guilt. And now the problem is that I feel extremely overwhelmed and depressed, very fearful that I'm not going to be able to be a good parent to the child."

This woman's comments represent an extreme reaction to the stress of infertility and the reduction. However, many women expressed milder feelings of inferiority and inadequacy during the interview.

Rather than being an intimate act between a woman and her partner in the privacy of their home, the act of conception for these women was a medically contrived condition evaluated and monitored by physicians and lab technicians in an office or hospital. As one woman said, the whole pregnancy felt "manipulated" and "unnatural". The need for the reduction was generally experienced as yet

another failure necessitating yet another technological intervention. Once again, women had to depend on physicians rather than their own bodies.

On the other hand, the initial diagnosis of the multiple pregnancy was experienced by some women as a narcissistic gain. For one thing, getting pregnant may have meant that they were more "successful" than the majority of their infertile peers, since the chance of becoming pregnant via ART therapies is less than 30% (Jones, Acosta, Andrews, et al., 1983). For many women in the study, pregnancy was perceived as a hard won victory, which distinguished them from their infertile peers.

In this context, for women who knew little about the physical dangers of multiples, the initial diagnosis of triplets or quadruplets was sometimes experienced as partially making up for their previous difficulties. For example, one woman said that she was "thrilled to death" at the news that she was carrying six fetuses, as she suddenly envisioned herself having a large family.

For women with a more sophisticated understanding of the threat of prematurity posed by multiples, the diagnosis was yet another disappointment. For some of these women the multifetal reduction seemed to be experienced as the "final injustice" in an "unfair" and psychologically difficult ordeal. "Why me?" these women asked.

Multifetal pregnancy reductions are performed near the end of the first trimester, during the phase of normal pregnancy which is viewed by psychoanalytic theorists as a period of heightened narcissism and regression for the woman (Bibring, Dwyer, Huntington, & Valenstein, 1961; Kestenberg, 1977; Lester & Notman, 1988; Pines, 1972). During these early months, before the pregnancy is externally visible, women turns inward, often perceiving the growing fetuses as an extension of herself. Thus selective termination is a narcissistic blow occurring during a period of increased narcissistic vulnerability.

Normally during the first trimester, the woman views the fetus primarily as an extension of the herself rather than as a separate person (Deutsch, 1945; Leon, 1992). In the case of women undergoing selective termination, this may give rise to the fantasy that the terminated fetuses will always be present within. When one subject was asked what thoughts she has had about the reduced fetuses she said she wonders "where they are" and has the fantasy that they are literally still a part of her:

> "They told me that after the reduction that [the fetuses] are just absorbed, that they don't pass out. And I like to think that they're still with me."

For the woman who has never before been pregnant, the first trimester is also a time when she begins to imagine herself as a mother and to develop fantasies about caring for a baby. ST patients, in great contrast to viewing

themselves as a nurturing life-giver, must incorporate a sense of themselves as one who takes life. It is significant that 31.0% of ST patients spontaneously used the terms "killing" or "murder" when they spoke of the reduction. The responsibility of choosing to terminate a fetus was difficult for many women. As one subject put it:

> "What's difficult is the knowledge that in one sense or another you're deciding who will live or die and playing God. How does one go about choosing who will live or who will die with your own children?"

"I felt like a murderer," said another woman who felt guilty about the reduction even though it was sanctioned by religious authorities.

At some level, for many women the reduction was experienced as a "sin". One woman found herself preserving a symbolic reminder of the "stain" of selective termination:

> "When they clean you with the iodine [before the selective termination], some of it spilled on my sneaker. That stain is a constant reminder to me but I won't get rid of the sneaker. I haven't even washed it.... I guess it's just my way of reminding myself. I mean, I haven't forgotten but I've forgotten. The sneakers are tucked under my bed, I don't wear them anymore. But in the beginning it was important for me to see that....The only think I could think of is like when a woman is violated, you know, she comes home and scrubs herself, and scrubs it away. But I didn't want it scrubbed away, I wanted it there."

This woman chose her stained shoe to represent the reduction, a psychic "stain", and a somehow shameful violation, that was both remembered and forgotten. Her metaphor was an eloquent representation of an urge expressed

by several women: the desire not to trivialize the termination, and to keep the lost potential child in mind.

While on conscious or unconscious levels the selective termination was usually experienced as an intrapsychic injury, for some women the continuing twin pregnancy became a partial narcissistic reparation.

Burlingham (1952) and Leonard (1961) are two of the early psychoanalytic theorists who have written about having twins as is an event which may lead a mother to feel "both privileged and proud of her achievement" (Leonard, 1961, p.302). For the previously infertile ST patient, the sense of specialness which may be associated with twins may become especially significant:

> "I've wanted twins since I was a little girl. I was elated. I think because it's special. We're not the first on either side [of the family] to have children, so during the pregnancy to me it was special because we were the only ones to have twins."

There was a general sense among women in the sample that the children delivered after selective termination were especially precious because so many difficulties had been overcome for them to be born. As one woman said her son was more highly valued because "he's the one who made it." Thus the children born after selective termination are seen as "the survivors" and may imbued with special qualities as women attempt to repair a sense of narcissistic injury from the selective termination.

Chapter V: Part IV - Other Issues Raised by the Study

In addition to answering explicit study hypotheses, a goal of this pilot study was to explore unanticipated issues which might arise in the course of the semi-structured interviews. Two important issues which arose during data collection were questions about how many fetuses should be left, and potential future problems concerning secrecy and privacy about the procedure. These two issues are addressed in the following section:

Terminating all but one fetus.

Physicians writing about selective termination have advocated reducing pregnancies to no fewer than two fetuses (eg. Evans, Fletcher, Zador et al., 1988). This stance has been recommended for ethical reasons and is based on the high rate of survival and health of twins as compared with triplets. But why are doctors making this decision rather than leaving it up the parents who must raise the children?

As many published studies indicate, twin children are at risk for premature birth, language delays and other developmental difficulties compared with their singleton peers (eg., Day, 1932; Hay, Prior, Collett & Williams, 1987). Mothers of twins are at higher risk for depression (Hay & O'Brian, 1983; Thorpe, Golding, MacGillivray & Greenwood, 1991) and the stress of parenting twins even

appears linked with higher rates of child abuse (Groothuis, Altemeier, Robarge et al., 1982).

Given the physical and psychological risks to twins and their parents, perhaps selective reduction to a single fetus should be a more widely available option. There are already indications of a demand for the option to reduce to one fetus: the only survey of ST patients published to date (Vauthier-Brouzes & Lefebvre, 1992) indicated that 20% of couples would have preferred to reduce to a single fetus.

One contra-indication for reducing to a singleton would be a higher rate of adverse mental health outcomes for the women who chose this option. The results of this study show no such negative effects. The 8 women in this study who chose to reduce to a single fetus for non-medical reasons were no more likely to report depressive episodes than other SST patients. In fact, there was a trend for these 8 women to have lower current psychiatric symptomatology: perhaps because pregnancy and new motherhood with a single baby is less stressful than with twins. These 8 women did not regret their decision later, even if they miscarried the entire pregnancy.

Most women who conceive multiple fetuses after infertility treatment are eager to parent twins. After trying so long to get pregnant they often saw twins as a way of completing their family with a single pregnancy and thus avoiding the frustrations and potential disappointments of

future infertility treatment. But there will be a minority of women who will prefer to bear a single child.

A few women in the study had encountered physicians who refused to reduce to a single fetus, and these women were angry about what they perceived as an unjust and judgmental position. One woman became quite angry as she described her husband's interactions with a doctor who refused to reduce to a single fetus:

> "The doctor would leave no less than two -- for ethical reasons. And my husband said he didn't understand: 'You'll take two, or you'll take all of them, but you won't take three. I don't understand.'
>
> And the doctor said that the health risks to the mother weren't any greater with two fetuses than with one and that it was basically an ethical thing for him.
>
> I just felt that it was so unfair to put that kind of restriction on it. Because no one was harder pressed to make that decision than my husband and I. Everyone's situation is different. And I didn't feel that he had the right to make that judgment of what was right or wrong in terms of the number. I mean, you feel guilty enough without anyone judging you."

In a country where one in three pregnancies ends in voluntary abortion, it is understandable that these women would expect the right to choose how many fetuses they carry. In this study, there was no indication of adverse mental health effects on women of reducing to one fetus. Thus, the findings support a pro-choice position. No psychosocial reasons were found to support the current practice of many physicians to permit a woman with a multifetal pregnancy to terminate her entire pregnancy, but to prohibit her from reducing to a single fetus.

Secrecy and privacy.

Only 20.6% percent of the women in this study plan to tell their children about the selective termination, and over half (52.9%) of the subjects were already sure that they never want their children to find out that there were siblings who were terminated before birth.

Despite the wish of the majority of women to keep knowledge of the termination from their children, 92.9% of the ST patients and their husbands had already told friends or family members about the procedure. And, as many women pointed out, news of the unusual medical procedure had often "spread like wildfire". Several women reported feeling that they no longer had control over the information, and that they were forced to tell the children about the procedure to keep them from finding out about it from other people.

The issues of secrecy and privacy surrounding the selective termination are quite complicated. The issues are similar in some respects to those which arise with adopted children or with children conceived via artificial insemination by donor.

In terms of adoption, current social norms involve telling the child about his biological heritage. However, with AID, the majority of couples keep the procedure completely private, often so that the children can not possibly be told about it inadvertently (Amuzu, Loxova & Shapiro, 1990; Clayton & Kovacs, 1982; Leiblum & Hamkins,

1992). For instance, Milsom & Bergman (1982) found that only one out of 92 couples who had conceived via AID planned to tell the children about the fertility treatment, and only 15% had informed anyone else about the origin of their child.

Both adoption and AID are planned events, so that couples have time to anticipate and discuss issues such as how and whether they want to tell others about their decision. Multifetal pregnancy, however, comes as a sudden and unexpected shock. Women in this study reported great surprise and distress about the news, and had only a few weeks during which to chose whether or not to undergo the procedure. In this context of crisis, some women reported that they told people about the multiples, and then about the reduction, without really thinking through the implications of their disclosures.

During the interview, it seemed that for some women the potential ramifications of their disclosures had still not sunk in --- Do these women really feel that they will be able to keep the termination a secret from their children when their entire extended families and many friends know about the procedure?

The long term impact of telling or not telling the children about the circumstances of their birth is a potential area for future research.

Chapter V: Part V - Limitations and Future Directions

Limitations of the current study.

As with any pilot study, there are methodological weaknesses which when identified may lead to improved research efforts in the future. The two methodological issues which will be addressed here are the limitations in the control group and the nature and timing of subject interviews.

An improved control group.

One weakness in the current pilot study consists of statistically significant demographic differences between the subjects and the control groups. The importance of an appropriate control group has been repeatedly acknowledged in this dissertation (eg., Ellsworth & Shain, 1985). However, there are limitations to this control group that warrant caution in interpreting the case/control findings. Although the control subjects were similar to ST patients in having fertility concerns, their actual course of fertility treatment was significantly different. Unlike the ST patients, control subjects tended to be in the earlier stages of infertility evaluation and treatment. In fact, almost half (45.5%) needed no medical treatment to achieve the current pregnancy.

Having a significantly shorter course of infertility treatment, and needing less expensive and physically invasive treatments to achieve pregnancy, may mean that the controls entered the study from a different psychological baseline.

However, there is a lack of evidence in the literature on infertility about whether this is the case. To my knowledge, there are currently no controlled, prospective studies of the mental health effects of infertility treatment over several years time. As has been previously pointed out (Downey & McKinney, 1990) it is still unknown whether women in the late stages of infertility treatment are the "survivors" -- and are especially healthy, persistent, and financially secure -- or whether they lack the flexibility shown by couples who adopt or adjust to a childless marriage. The average infertility patient at the stage of pursuing hMG ovulation induction, or ART therapies, may be more or less healthy than her infertile peer in the early stages of workup and treatment.

The discrepancy in reproductive histories between subjects and controls in this study would have been a greater problem if the data had indicated that ST patients were more depressed and symptomatic. If ST patients had reported more mental health problems than controls than their difficulties might be blamed partially on the stress

of ovulation induction and ART therapies rather than the selective termination.

It should be kept in mind that the lack of statistical association between length or type of infertility treatment and mental health status, for either subjects or controls, somewhat mitigates the problem of demographic differences. On the basis of within-group comparisons, there was no indication that women who had tried longer and harder to get pregnant were any more or less psychologically healthy than any other subjects.

Still, in an ideal methodological world, the controls would have been better matched with the ST patients. A more appropriate sample, and one that could be recruited for future studies, would be women who conceived twin pregnancies after ovulation induction or ART therapies.

Two other significant demographic differences between ST patients and controls were found; differences in religion and general self-satisfaction. Controls were more likely to be Agnostic or Atheist than ST patients. And the controls who had miscarried reported lower self-esteem than ST patients who subsequently lost the entire pregnancy. Neither of these two demographic variables was significantly associated with differences in mental health outcome.

It is surprising to find that UST patients reported higher levels of self-satisfaction considering the narcissistic trauma posed by both the selective termination

and the subsequent miscarriage. One possible explanation for this finding is that the UST patients had greater unconscious need than U controls to defend themselves against feelings of low self-esteem and guilt after losing their pregnancy. Perhaps acknowledging impaired self-worth would have been too threatening to these women as they struggled to cope with guilt about their decision to terminate some of the fetuses and to subsequently lose the entire pregnancy.

The limitations of a single telephone interview.

The first, and perhaps greatest limitation of this study is that all data was collected in a single telephone interview. It would be helpful in future studies to have a more in-depth approach, including face to face interviews, on an ongoing basis, from the diagnosis of the multiple pregnancy until after birth. Such a study might be possible to perform in conjunction with counseling for the couple faced with the decision about whether or not to terminate.

There were also limitations imposed by the timing of interviews in this study. Both ST patients and controls were administered a single interview during pregnancy or postpartum. Some women were interviewed during their first trimester, others later in pregnancy, and still other women were contacted after birth.

There were positive and negative aspects to this methodological strategy. One problem was that emotional reactions to selective termination may have been confounded by stresses associated with particular stages of pregnancy or postpartum adjustment. For example, somatic symptoms may be at a peak early in pregnancy and again near the end of the third trimester. A clearer picture of the effects of selective termination may have been obtained if all subjects and controls were interviewed during the same stage of pregnancy, or the same time postpartum.

On the other hand, the cross-sectional sampling of women's reactions at various points during pregnancy and postpartum made it possible, even with a small sample size, to examine the relationship between depression and the length of time since the reduction. In fact, it was discovered that women were more likely to report depressive episodes if they were interviewed while still pregnant, and that the more recent the termination the higher the average level of psychiatric symptomatology. Such changes over time would have been impossible to detect if all subjects had been interviewed at the same point post-reduction. This finding was one of the most powerful indications that selective termination is perceived as a life crisis to which most women successfully adapt over time.

Ideally, all subjects would have been interviewed at the same point during pregnancy, and then reinterviewed after

giving birth. This would have permitted much more powerful, paired statistical analyses of the effects of selective termination over time.

Of course, a repeat-measure, longitudinal approach would have also had certain methodological problems of its own. As Neugebauer et al. (1992) pointed out in their rigorous study of the effects of miscarriage, interviews about a traumatic reproductive event appear to have unintended (if welcomed) therapeutic benefits, perhaps as a result of the catharsis of telling the painful story to an interested interviewer. In their study, women interviewed for a second time 6 months after the miscarriage reported significantly lower levels of depression than women interviewed for the first time 6 months after the miscarriage.

In other words, it is very likely that if selective patients had been contacted twice, they would have looked significantly less symptomatic at the second contact, but a portion of this reduction in distress would be an artifact from having been interviewed before. Given the comparative infrequency of selective termination, it is unlikely that large enough sample size could be recruited to permit the rigorous epidemiological approach conducted by Neugebauer and his colleagues, who interviewed some women once, and others more than once following miscarriage. Their study included 382 miscarrying subjects.

Still, in future research efforts it may be possible to interview all subjects at the same given point after the reduction. And it will hopefully be possible to interview subjects in face-to-face, in-depth interviews.

Directions for future research.

In addition to changing the nature and timing of subject interviews, one of the most immediate aims of further research efforts should be to investigate the impact of not reducing a pregnancy. Perhaps the most interesting future control group would be women who conceive a multifetal pregnancy but choose not to undergo selective termination. What is the general mental health status of women who decide to carry triplets to term compared with women who reduce? The uncontrolled studies of mothers of triplets and quadruplets suggest that such women are at significant risk for depression, and that the children are at risk for developmental delays and scapegoating (Garel & Blondel, 1992; Goshen-Gottstein, 1980; Menzel & Rotnem, 1990; Robin et al., 1991). However, as this dissertation and the latest controlled studies of postpartum and infertile women all show, research results can only lead to tentative conclusions until an appropriate comparison group has been included in the study design.

Chapter V: Part VI - Clinical Recommendations

Suggestions for physicians and mental health professionals with regard to selective termination.

Although this pilot study is based on semi-structured interviews rather than clinical data from psychotherapy with ST patients, tentative recommendations will be offered for future clinical management of the procedure. Although it may be presumptuous to suggest medical and counseling strategies without clinical experience with ST patients, these suggestions are offered in the spirit of exploration in a new area for which there are no existing therapeutic guidelines.

1) Access to detailed information.

Anticipation and intellectualization appeared to be especially helpful defenses for many women coping with the stress of selective reduction. Although some women may not have the educational level, or character style, to be able to understand or absorb detailed medical information, access to such information should be offered to all potential reduction patients as soon as possible after the diagnosis of multiples. A few women in this study did their own detailed research into the technical aspects of the procedure, and into the medical consequences of not reducing the pregnancy, and said that knowing what to expect was an

extremely useful coping strategy. For many women, an intellectual understanding of what to expect increased their perceived sense of control, and as they felt less helpless they felt less distressed.

2) A referral for counseling.

The findings of this study suggest that each prospective ST patient should be offered a referral for consultation with a mental health professional familiar with the medical procedure. In fact, it is arguable that at least one counseling session before the reduction should be considered mandatory. A few women expressed the wish that such a referral had been made, and the 10 subjects who did pursue counseling found it extremely helpful. On the other hand, neither of the two women who had talked to peers who had already undergone the procedure felt that their emotional concerns were addressed in these conversations.

In addition to talking about the couples' emotional reactions to the diagnosis of multiples and the idea of the reduction, even a single counseling session would be helpful in informing the woman about details of the procedure, discussing ethical questions each couple might have, and talking about issues of confidentiality with regard to the procedure. Any signs of severe ambivalence could be assessed; an important task since ambivalence appears to be associated with later negative emotional reactions.

3) Dealing with issues of future privacy.

One of the goals of a consultation with a mental health professional might be to help the couple examine issues about secrecy and privacy regarding the termination. In the short term, couples may feel the need to share their feelings about the reduction, and they may not initially consider the long range implications of discussing the procedure with friends or family members. Couples may wish to use great discretion in telling others about the procedure if they do not wish the children to find out about it in the future.

4) The possibility of partial spontaneous reduction.

When women are carrying 4 or more fetuses, they should be encouraged to think about the possibility that they might spontaneously reduce to triplets. Couples might be urged by their physician to think in advance about what they might choose to do in this situation.

The medical management of triplet pregnancies is becoming so sophisticated that health and survival rates are quite high. (In fact, at a recent medical conference, an infertility specialist told me that he had not been able to find a physician in his city willing to perform reductions on triplet pregnancies, that "for ethical reasons" the

physicians were only willing to selectively reduce quadruplets or more.)

Some couples who reduce from quadruplets to twins might not want to undergo the procedure for triplets. The only SST patient in this study who regretted the procedure first made the decision to reduce when she was carrying quintuplets. Later she regretted not having more information about triplet pregnancies when she found out on the day of the medical procedure that she had spontaneously reduced to three fetuses. She now feels that if she had been better prepared she would not have let her husband pressure her into reducing to twins.

5) Attention to husbands' reactions.

A few women in this study mentioned that their husbands had experienced a more extreme negative emotional reaction to the procedure than they did. Multifetal reduction is a life event which involves both members of the couple, and the needs of the father should be addressed as well. Medical personnel and counselors should be aware of the potential distress of fathers, and men should be a focus of future research and counseling efforts in the area.

5) The useful defensive purposes of medicalization.

In general, a framework in which the medical aspects of the procedure are emphasized may help a woman distance

herself from the sorrow and guilt of taking the life of a wanted baby. For example, it will usually be helpful for physicians and other medical staff to use highly technical language when talking about the reduction in front of patients and their husbands. This one instance when the use of jargon is appropriate. For instance, talking about fetuses is preferable to talking about babies. To talk about the "cessation of activity in the thoracic cavity" might be easier for women to hear than that "Fetus 'C's' heartbeat just stopped".

Along the same vein of not adding to the vividness of images connected with killing a potential child -- images which for the couple may become lasting memories -- the ultrasound monitor should probably not be placed so that women and their husbands can view the actual termination.

Women who experience other perinatal deaths find the loss easier to cope with when it is viewed as the end of a pregnancy rather than the death of a baby (Leon, personal communication). Several women in this study made explicit their intellectual struggle to view the reduction as a means to continue a successful pregnancy rather than the termination of a child. This seems to be an appropriate strategy for coping with an emotionally difficult procedure. Many aspects of the medical procedure bring to mind graphic mental images of "shooting" and "murdering" a human child.

The conscious use of euphemisms could provide welcome respite from an emotionally painful experience.

7) The responsibility for medical care post-reduction.

There may need to be greater coordination and cooperation between the infertility specialist, the physician performing the reduction, and the obstetrician who will deliver the pregnancy. When something goes wrong after the reduction, it may be unclear which physician is responsible for consultation and treatment. If possible, the physician who performs the selective termination should try to be available for consultation should the patient subsequently miscarry, since the obstetrician following the woman's pregnancy may know little about the procedure and its possible sequelae.

A medical finding of this study was that women with a history of prior miscarriage were at significantly higher risk for miscarriage post-termination. This finding may help alert physicians to patients who are at special risk for losing the entire pregnancy.

Chapter V: Part VII - Conclusion

A summary of the findings.

This study found that, as measured by standardized interview instruments, selective termination does not

increase women's risk for depressive disorder or result in a long-term elevation of psychiatric symptomatology. On the other hand, multifetal pregnancy reduction is experienced by women as stressful: it is almost always associated with intense anxiety, and often results in feelings of grief during the weeks before and after the procedure.

While stressful and distressing, selective termination does not appear to be as severe a trauma as miscarriage. The spontaneous loss of an entire pregnancy following infertility treatment usually has negative mental health repercussions, and may be more difficult for women to cope with than the planned reduction of a multifetal pregnancy.

As is true for the elective abortion of an entire pregnancy (Adler et al., 1992) only a minority of women will develop severe and long-lasting mental health disorders in response to selective termination. Contrary to initial study hypotheses, demographic factors such as religion and prior infertility history are not significantly correlated with psychological outcome after selective termination.

However, women with prior birth children are more susceptible to episodes of depression which they attribute to the multifetal pregnancy and reduction. Women who are already mothers have "less to gain" from a developmental point of view than childless women, and therefore focus more on the negative aspects of the multiple pregnancy.

The risk of depressive disorder appears most likely in women who feel coerced into undergoing the procedure, or who exhibit pre-existing psychopathology. Evidence of extreme ambivalence about the procedure may indicate a need for further counseling before the termination is performed.

In general, the psychological effects of selective termination are something of a paradox. As the perceived "murder" of a wanted child it is experienced by many women as a trauma analogous to "Sophie's Choice". But at the same time, it is often seen as a technological "miracle" which permits parenthood to occur.

A theoretical perspective which encompasses four psychoanalytic modalities (Leon, 1990; 1992) helps unravel the ambivalence of reactions to selective termination. From a developmental perspective, selective termination helps women attain a the central life goal of parenting healthy, biological children, and is thus perceived as a positive event.

From a drive perspective, selective termination intensifies and complicates unconscious conflicts associated with pregnancy, especially since the graphic nature of the termination resonates with any unconscious ambivalence and primitive fantasies about the pregnancy.

From an object relations perspective, women who have undergone selective termination face a complex psychological challenge as they form an attachment during pregnancy with

the remaining babies. On one hand, they are faced with more frequent medical evidence of the reality and humanity of the fetuses growing within their body. On the other hand, increased anxiety about possible loss of the pregnancy often triggers conscious attempts to limit an emotional investment in the pregnancy.

Finally, selective termination incurs a narcissistic injury to women already struggling with the threats to self-esteem and body image posed by infertility. For some women, however, the eventual birth of healthy twins may be experienced as a partial narcissistic reparation, because they are able to view themselves as themselves special in comparison to mothers of singletons.

The findings of this dissertation support women's continued access to multifetal reduction in that no severe psychiatric risks were associated with the procedure. There was also no clear mental health reason found for preventing couples from reducing to a single fetus. On the other hand, given a social context in which women may make reproductive choices freely, it is important not to minimize the potential emotional trauma such choices may incur.

In a paper presentation which explicitly supported a pro-choice position on abortion, psychoanalyst Nada Stotland (1991) presented an analytic case in which the patient was able to uncover many important and unrecognized negative fantasies about a prior abortion. During the course of the

analysis, exploration of these painful fantasies helped facilitate the patient's positive transition to motherhood. Stotland concludes that:

> "The case I have presented raises the possibility that social changes which increased access to abortion also trivialized it, paradoxically diminishing psychological entitlement to support, and driving painful feelings out of awareness, just as social disapproval had in the past" (Stotland, 1991, p.19).

This same point must be made for multifetal reduction: social acceptance of the procedure does not mean that it will be unstressful, nor that women, their husbands, and their children will not suffer permanent, if subtle, negative effects from an emotionally painful and unwelcome experience.

It was beyond the scope of this study to study the effects of selective termination on the children who are born after the procedure. However, it may be speculated that selective termination could complicate a mother's relationship with her living offspring. The living children may be seen as more precious and treasured, but may also be constant reminders of the loss of other, idealized, potential children.

The psychological effects of selective termination are especially important to understand as the procedure becomes more widespread. Sociological trends for women to delay childbearing increases the chance that ovulation induction will be needed to attain pregnancy. And with the increased

health and survival rates for triplet pregnancies, the decision to undergo multifetal reduction in the case of triplet pregnancies may increasingly be based on psychosocial rather than medical factors.

The dilemmas and complexities posed by selective termination are an illustration of how infertility treatment is changing the social fabric and the psychological tasks faced by pregnant women. If current trends continue, more women are likely to conceive multiples, and more children will be born to women who have undergone selective termination. As one woman in the study commented at the end of her interview:

> "People keep saying to me, 'It seems like there're twins everywhere you look.'
> And they don't know that it's because so many people are taking drugs. When I see twins now, sometimes I want to ask the mother, 'How many babies did you conceive?'"

As selective termination becomes relatively common, more and more children may one day echo the protagonist of one of John Barth's novels:

> "Once upon a time I was twins; my other half didn't quite make it into this world. "(Barth, 1991, p.27)

Appendix A: Recruitment Letter and Consent Form

Recruitment Letter

College of Physicians & Surgeons of Columbia University
The Presbyterian Hospital in the City of New York

Ilan E. Timor, M.D.
Director of Obstetrical Service
and Ob/Gyn Ultrasound
Professor of Clinical
Obstetrics and Gynecology

Department of Obstetrics & Gynecology
630 West 168th Street
New York, New York 10032
(212) 305-2189

Dear

There are a growing number of new medical procedures to help couples bear healthy children. However, little is known about how these advances affect women's lives. About _____ ago, I performed a medical reduction of your multiple pregnancy, and while much is known about the physical aspects of this procedure, very little is known about how women are affected emotionally by the experience.

In order to find out more about the impact of pregnancy reductions, I have joined with a psychiatrist here at Columbia Presbyterian, Jennifer Downey, M.D., and a psychologist, Mary McKinney, M.A., to study the issue. We would like to ask you for your help in a research project we are conducting.

The study consists of an interview over the telephone scheduled at your convenience. If you choose to participate, Ms. McKinney will call you about two weeks from the date of this letter to make an appointment. The interview takes about an hour, and consists of questions about the pregnancy reduction, your medical history, your mood, and symptoms you may have in times of stress. Your medical chart in my office would also be reviewed.

If you would rather not participate, you may simply decline to be interviewed when Ms. McKinney calls. Also please feel free to telephone Ms. McKinney or Dr. Downey (at 212-960-2297) if you have any questions about our research. We are enclosing a consent form which explains more about the study, and about your rights as a research subject if you decide to help.

Thank you for considering being interviewed. Sharing your thoughts will help me and other physicians provide women with better care.

Hoping you can join us in the study.

Sincerely,

Ilan Timor, M.D.

Dear _____,

Participants in every study at our hospital must be informed about their rights as research subjects. This informed consent form is for your records.

Pregnancy Reduction Study Informed Consent Form

Study Purpose: I have been asked to participate in a research study of how the medical reduction of a multiple pregnancy affects a woman's life and that of her family.

Study Procedure: I give my permission for a telephone interview which includes questions about my response to the pregnancy reduction, my reproductive history, and a psychological assessment of my mood and current emotional state. The interview usually takes about an hour and will be scheduled at my convenience. If I wish, portions of the interview may be audiotaped so that my comments can be recorded faster and more accurately. I also give permission for my medical chart in Dr. Timor's office to be reviewed by the research staff.

Risks and Benefits: I understand that this study is a research project and not designed for my benefit, although I may find it helpful to discuss the interview topics with a trained mental health professional. Some of the questions may be upsetting, and I may decline to answer any interview questions I wish.

I have the right, upon my written request, to have all interview data sent to me or to any service agency, but without this written consent no information will be released. I realize that I will not be paid for my participation in the study.

Research Standards and Rights of Participation: My participation is voluntary and I can withdraw from the study at any time without affecting my regular clinical care at Columbia Presbyterian. If I do not wish to be interviewed I may decline to participate when I am called by the interviewer, Mary McKinney, M.A.. I may also participate in the study without having portions of the interview audiotaped.

Any information that I provide for the study will be treated confidentially. This means that all information will be stored in locked cabinets accessible only to the research staff, will not be made available to any third party without my consent, and will not be published in any way that would lead to my identification.

Questions that I have about this study will be answered by Ms. McKinney, to the best of her ability. Any further questions will be answered by Dr. Jennifer Downey, whose telephone number at Columbia-Presbyterian is (212) 960-2297.

Both the New York State Psychiatric Institute/Columbia University Department of Psychiatry Institutional Review Board (NYSPI IRB) and the Columbia-Presbyterian Medical Center Institutional Review Board (CPMC IRB) have approved the recruitment of subjects for this study. If I have any questions regarding my rights as a research subject, or any complaints, I may call either the NYSPI IRB at (212) 960-5758 or the CPMC IRB at (212) 305-4646 during office hours.

Appendix B: Instrument

(Note that the Brief Symptom Inventory is omitted because of Copyright laws.)

Instrument Pregnancy Reduction Interview 7/15/81

PREGNANCY REDUCTION INTERVIEW Card 1

\# ID# should be copied on each card: 2-6

\# Identification number: ID # ___ ___ ___ ___ (2-5) 6=Blank

Date of Interview: __ __/__ __/__ __ (7-12)

Date of Reduction: __ __/__ __/__ __ (13-18)

Number of days between Reduction & Interview: ___ ___ ___ ___ (19-22)

PART I. DEMOGRAPHICS

I'd like to start by asking some general questions about you and your family.

Q1) Are you married? (23)

1. Single 2. Married 3.Divorced 4. Widowed

(If unmarried)
Q2) Do you currently have a steady partner? (24)

1. No 2. Yes 3. NA _____

Q3) How old are you? ___ ___ (25-26)

Q4) What is your date of birth? __ __/__ __/__ __ (27-32)

Q5) How old is your husband? ___ ___ (33-34)

Q6) What is his date of birth? __ __/__ __/__ __ (35-40)

Instrument

Pregnancy Reduction Interview

Q7) What level of school did you complete? (41)

Q8) What level of school did your husband complete? (42)

1. less than 7th
2. 7th-9th grade
3. partial high school
4. high school
5. partial college
6. college
7. graduate training

Q9) What is your occupation? _____

Q10) Husband's occupation? _____

Q11) What religion were you while growing up? (43)

1. Catholic 2. Protestant 3. Jewish
4. Moslem 5. Agnostic/Atheist
6. Other _____

Q12) What is your current religion? (44)

1. Catholic 2. Protestant 3. Jewish
4. Moslem 5. Agnostic/Atheist
6. Other _____

Q13) How religious do you consider yourself? (45)

1. Not at all 2. Somewhat 3. Religious
4. Very Religious 5. NA _____

Q14) What is your ethnic group? (46)

1. American Indian 2. Black 3. White
4. Hispanic 5. Asian
6. Other _____

Now I'd like to ask you three questions about your general emotional state and about your marriage (relationship with your partner.)

Q15) **About your relationship with your husband (or partner): Everything considered, how happy are you in this relationship? Would you say you feel:** (47)

Very Unhappy	Somewhat Unhappy	Neutral	Somewhat Happy	Very Happy
1	2	3	4	5

Q16) **About your feelings about yourself: In general, how satisfied with yourself are you? Would you say you feel:** (48)

Very Unsatisfied	Somewhat Unsatisfied	Neutral	Somewhat Satisfied	Very Satisfied
1	2	3	4	5

Q17) **About your mood right now -- How would you rate your mood on a one to ten scale; with 1 as your worst mood, when you are feeling most unhappy, depressed or anxious, and with 10 as your best mood, when you are feeling happiest and most content. On this scale what number would you give your current mood?** (49)

Worst Mood									Best Mood
1	2	3	4	5	6	7	8	9	10

PART II PREGNANCY HISTORY

Now I'm going to ask questions about your pregnancy and your medical history.

Q1) **Are you currently pregnant?** (50)

1. No 2. Yes

Q2) **Had you ever been pregnant before this?** (51)

1. No 2. Yes

Q3) **How many times have you been pregnant altogether?** (include reduced pregnancy) (52-53)

Instrument

Pregnancy Reduction Interview

Q4) **How many children do you have?**
Are these your birth children?
With your current husband?

Number of Birth children
(include live born children from reduced pregnancy) (54)

Birth with current partner (55)

Birth children with a previous partner (56)

Partner's children from another marriage (57)

Adopted/Foster children (58)

Q5) **How many, if any, times have you miscarried?**
(If subject has questions - count only miscarriages confirmed by a doctor. Also include most recent miscarriage.) (59-60)

Q6) **How many times, if any, have you had an abortion?**
(Include only voluntary terminations.) (61-62)

Q7) **How old were you when you became pregnant the first time?** (63-64)

(IF SUBJECT IS PREGNANT....)

Q8) **How many weeks pregnant are you?** (65-66)

(SKIP TO QUESTION 19 P. 7)

Instrument

Pregnancy Reduction Interview

(IF SUBJECT IS NOT CURRENTLY PREGNANT....)

Q9) What was the outcome of your most recent pregnancy?

details _____

_____

Outcome from this pregnancy: Number of live children: (67)

Number of pre- or postnatal deaths: (68)

Outcome of most recent Pregnancy: (69)

1) miscarriage (before 28th week)
2) all lost through stillbirth
3) all infants lost postnatally (up to 1 month postpartum)
4) one or more live children and one or more perinatal deaths
5) all children living

(FOR SUBJECTS WHO MISCARRIED:)

Q10) When did you miscarry? __ __/__ __/__ __ (70-75)

leave 76-80 Blank
Card 2 Duplicate (2-6)

(Figure out days elapsed between miscarriage and interivew) (207-209)

Q11) How many weeks pregnant were you when you miscarried? (210-211)

Later I'd like to come back and ask about your feelings during that time, but first I need to ask other questions about your medical history.

(Figure out weeks elapsed between pregnancy reduction and miscarriage) (212-215)

Instrument — Pregnancy Reduction Interview

(FOR SUBJECTS WHO GAVE BIRTH:)

Q12) When did you give birth? __ __/__ __/__ __ (219-224)

(Figure out days elapsed between birth and interview) ___ (210-213)

Q13) How many weeks pregnant were you when you gave birth? ___ (214-215)

Q14) Were there any problems during the delivery? (226)

1.No 2.Yes

What?_____

Q15) Was the delivery Vaginal or Caeserean? (227)

1. Vaginal 2. Caeserean

Q16) Were the babies healthy? Were there any problems? (228)

1. Death of at least one child
2. Health Problems for at least one child
(ie. child was hospitalized after mother went home)
3. All babies healthy

details_____

_____

_____

Q17) How many days was your infant hospitalized? (If more than one infant had a hospital stay code longest stay.) ___ ___ ___ (229-231)

Q18) How severe do you consider your infant's health problems? (Code for most severely affected child) (232)

No health problems	Mild	Moderate	Severe	Extreme health problems
1	2	3	4	5

Instrument

Pregnancy Reduction Interview

(FOR ALL SUBJECTS)

Q19) What was your age when you conceived? ___ ___ (233-234)

Q20) When did you get pregnant? (Month and year of conception) ___ ___/___ ___ (235-238)

Q21) How long had you been trying to conceive when you got pregnant? (To calculate months, first ask the woman when she first started "trying" - and make sure that this was when she first stopped using birth control)

(Started trying _____/_____) Total Months Trying: ___ ___ (239-240)

Q22) Were you undergoing infertility treatment? ___ (241)

1. No 2. Yes

(If No...)

Q23) Have you ever undergone infertility evaluation or treatment? ___ (242)

1. No 2. Yes

(If subject has had infertility treatment)

Q24) How long ago did you first consult a physician with a question about your fertility? ___ (243)

Details if offered_____

_____

1. No Fertility tests
2. Less than 6 months
3. 7-12 months
4. 13 mos. - 2 years
5. 25 mos. - 4 years
6. More than 4 years

Instrument

Pregnancy Reduction Interview

Q25) I'm going to list several fertility tests and treatments which some people undergo. Please tell me which ones you or your husband have ever had.

	Blood tests (hormone levels)	1. No	2. Yes	____ (244)
	Basal body temperature charts	1. No	2. Yes	____ (245)
	Postcoital test (explain)	1. No	2. Yes	____ (246)
	Semen examination	1. No	2. Yes	____ (247)
	Hystersalpingogram (explain)	1. No	2. Yes	____ (248)
	Endometrial Biopsy	1. No	2. Yes	____ (249)
(1)	Clomid or Seraphene	1. No	2. Yes	____ (250)
(2)	Pergonal	1. No	2. Yes	____ (251)
(3)	Surgery related to the infertility problem	1. No	2. Yes	____ (252)
(4)	Varicocele correction	1. No	2. Yes	____ (253)
(5)	Artificial Insemination	1. No	2. Yes	____ (254)
(6)	In vitro fertilization	1. No	2. Yes	____ (255)
(7)	GIFT (gamete intrafallopian transfer)	1. No	2. Yes	____ (256)
(8)	Other _____	1. No	2. Yes	____ (257)

Q26) With regard to this pregnancy, Did you need special treatment to conceive?
1. No 2. Yes ____ (258)

Instrument

Pregnancy Reduction Interview

(If treatment was needed for this pregnancy...)
Q27) What kind of treatment? ____/____/____ (259-261)

_____

(Code with number from question 25) if more than one treatment used, code in order mentioned. Eg. pergonal + clomid = 2/1/-)

Q28) How many fetuses did you conceive? (Medical Records _____ ____) ____ ____ (262-263)

Q29) How many fetuses were you carrying at the time of the pregnancy reduction? (Medical Records ____ ____) ____ ____ (264-265)

Q30) How many fetuses was the pregnancy reduced to? (Medical Records ____) ____ 266

Number of weeks pregnant at time of reduction? (Go by CRL in Medical Records) ____ ____.____ (267-269)

Q31) Except for the pregancy reduction, did you need any other special treatment during the pregnancy? 1.No 2.Yes ____ (270)

Describe _____

Q32) Was bedrest necessary? ____ (271)

Q33) For how many days? ____ ____ ____ (272-274)

Q34) Was hospitalization before delivery needed? ____ (275)

Q35) For how many days? ____ ____ ____ (276-278)

leave 279-280 blank

Pregnancy Reduction Interview

Instrument

PART IV: PREGNANCY REDUCTION INTERVIEW

In this next section I'd like to ask more generally about your feelings and experiences concerning this pregnancy ...
(and about your subsequent childbirth)
(and about your subsequent miscarriage)
Some of the questions will be like the previous section, in that I will ask for structured answers such as did you feel something a little bit, moderately, etc. However, other questions will be open ended, as I try to get a sense about how your pregnancy has been and what emotional issues you have faced.

Q1) Can you tell me about the circumstances leading up to your pregnancy? (probes if needed: How was the infertility treatment going? How were things going at work and at home?)

_____

_____

Q2) How were you feeling emotionally during the few months before your pregnancy? (probe:Were you feeling hopeful or frustrated?)

_____

_____

_____

Q3) How did you discover that you were pregnant? When was this? (ie. how many weeks pregnant)? What was your reaction to the news of your pregnancy?

_____

_____

CARD 4 (1)
Duplicate (2-6)

Q4) When did you find out that you had a multiple pregnancy? What happened?

_____

_____

Number of weeks pregnant at diagnosis of multiple pregnancy: ____ ____ (407-408)

Q5) What was your emotional reaction to the news of your multiple pregnancy?

_____

_____

Q6) How distressed or upset were you at the news of your multiple pregnancy? (409)

1 Not at all
2 Somewhat distressed
3 Moderately
4 Very distressed
5 Extremely distressed
9 NA

Q7) What was your physical experience of pregnancy like during your first trimester (before the reduction)?

_____

_____

Q8) Do you think that you felt especially ill or tired because of having a multiple pregnancy? (410)

1. No 2. Yes 3. Unsure

Q9) When was the possibility of a pregnancy reduction first described to you? (411)

1. Before conception when the specific infertility treatment was planned or started
2. After the multiple pregnancy was diagnosed
3. Other _____

Q10) What were your thoughts about the procedure initially? (412)

Subject's thoughts were primarily:

1. Negative 2. Positive 3. Neutral 4. Mixed

_____

_____

Q11) Can you tell me about the time between finding out that you were pregnant and the time you went for the procedure? What emotions did you feel during this time?

_____

_____

_____

Instrument

Pregnancy Reduction Interview

Q12) When did you and your husband make the decision to have the reduction? (413)

_____

_____

1) Subject indicates that she did not consider the pregnancy reduction a "choice".

2) Before conception, at start of infertility treatment

3) After diagnosis of multiple pregnancy

(If Q12 is coded as 3 -- otherwise code 99)
Number of days after diagnosis of multiple pregnancy: (414-415)

Q13) How difficult was it for you to make the decision? (416)

1. Not difficult
2. Somewhat difficult
3. Moderately
4. Very difficult
5. Extremely
9. NA

_____

_____

Q14) How difficult do you think it was it for your husband to make the decision? (417)

1. Not difficult
2. Somewhat difficult
3. Moderately
4. Very difficult
5. Extremely
9. NA

_____

_____

Instrument

Pregnancy Reduction Interview

Q15) Did you seek advice from anyone when making your decision to have the pregnancy reduction? Who did you talk to?

1) Advice sought	1) No 2) Yes	(418)
2) In addition to the treating physician couple sought other medical advice	1) No 2) Yes	(419)
3) Couple sought religious counselling	1) No 2) Yes	(420)
4) Couple sought advice from family members	1) No 2) Yes	(421)
5) Advice from friends	1) No 2) Yes	(422)
6) Advice from a mental health professional	1) No 2) Yes	(423)
8) Other _____	1) No 2) Yes	(424)

Instrument

Pregnancy Reduction Interview

Q16) Can you tell me about the factors which influenced your decision to have the reduction? What made you and your husband decide that it was best to undergo the procedure?

Reason first mentioned:
(code from questions 17-25) (425-426)

_____

_____

_____

There are many reasons a couple may decide that having a pregnancy reduction is the best decision. I'm going to list several factors and I'd like you to tell me how much, if any, each one influenced your decision to have the reduction. The answers I'd like you to choose from are:

Not at All		Moderately	Quite A Bit	
	Somewhat			Extremely
1	2	3	4	5

Q17) How much was your physician's advice a factor? (427)

Q18) What about the health risks for the babies if you tried to carry all of them to term? (428)

Q19) Health risks to you in carrying a multiple pregnancy? (429)

Q20) A physical anomaly in one or more fetuses? (430)

Q21) Attaining your ideal family size? (431)

-

Instrument

Pregnancy Reduction Interview

(reasons for undergoing selective termination, cont.)

Q22) What about financial concerns associated with raising many children? (432)

Q23) The practical concerns involved in caring for many infants? (433)

Q24) What about the emotional stress of parenting so many infants? (434)

Q25) Did you have any other concerns about trying to carry the multiple pregnancy to term? How much did this factor affect your decision? (435)

_____

_____

Q26) Among these concerns, which would you say was the primary reason you underwent the medical procedure?

(Use question number 17-25 to code) (436-437)

Q27) How was it decided how many babies to carry? (ie. How did woman decide to go from 3 to 2, etc.)

(Code with question number 17-25) (438-439)

_____

_____

Instrument

Pregnancy Reduction Interview

Q28) What were your worries and fears about undergoing the pregnancy reduction?

First fear mentioned:
Code with Question 29-33 (440-441)

_____

_____

_____

Now I'm going to ask you about some of the fears and concerns that women may have before undergoing the reduction. Again I'd like you to tell me how much each factor concerned you, using the answers:

Not at All	Somewhat	Moderately	Quite A Bit	Extremely
1	2	3	4	5

Q29) How much were you afraid of losing the entire pregnancy? (442)

Q30) How much were you concerned about health risks to the remaining babies? (443)

Q31) What about health risks to you from the procedure? (444)

Q32) Fears of the medical procedure itself - not health risks but worry about the pain or discomfort? (445)

Q33) What about ethical concerns raised by the procedure? (446)

Could you describe these ethical concerns?

_____

_____

Instrument

Q34) How much did you worry about the emotional reactions you might have after the procedure, such as worries about feeling sadness or grief. (447)

Q35) Did you have any other worries about undergoing the reduction? How much did this concern you? (448)

_____

Q36) Of all the factors mentioned, which would you say was your most pressing concern about the reduction?

(Code with question number 29-35) (449-450)

Q37) How was the actual procedure?

_____

_____

Q38) Was your husband with you? 1. No 2. Yes (451)

Q39) Did anyone else come with you? 1. No 2. Yes (452)

Who? _____

Q40) How supportive do you feel that your husband has been with respect to the pregnancy reduction? (453)

Not at all	Somewhat supportive	Moderately	Very supportive	Extremely
1	2	3	4	5

Q41) Is there anything that you would have liked him to do differently, or any way he could have been more supportive? (454)

_____ 1. No 2. Yes

_____

Instrument

Pregnancy Reduction Interview

Q42) **Did you and your husband tell anyone about the pregnancy reduction?**
(If subject has already mentioned seeking advice about the procedure phrase differently: eg. In addition to _____ have you told anyone about the procedure.)

Who?_____

Told anyone else?	1. No	2. Yes	(455)
Other Doctors	1. No	2. Yes	(456)
Family Members	1. No	2. Yes	(457)
	How many family?		___ ___ (458-459)
Friends	1. No	2. Yes	(460)
	How many friends?		___ ___ (461-462)
Therapists, Clergy, helping professionals	1. No	2. Yes	(463)
Other:_____	1. No	2. Yes	(464)
	Number of people told		___ ___ ___ (465-467)

Instrument

Pregnancy Reduction Interview

Q43) Do you plan to tell anyone else in the future? (466)

1. No 2. Yes 3. Unsure

(Omit for women who miscarried)

Q44) Do you plan to tell your children about the reduction? (469)

1. No 2. Yes 3. Unsure

Q45) How do you think that having the reduction has affected your experience of your subsequent pregnancy?

_____

_____

_____

Q46) How much has the pregnancy reduction affected your experience of pregnancy? (470)

1. Not at all
2. A little bit
3. Moderately
4. Quite a bit
5. Extremely
9. NA

Q47) Which aspects of this pregnancy have been emotionally difficult for you? What concerns have you had since the reduction, if any?

(Try to code with Question number 48-55)
First mentioned difficulty: (471-472)

_____

_____

_____

Leave 73-80 Blank

Instrument Pregnancy Reduction Interview

(Omit this section for women who have miscarried)

Now I'd like to ask you about several fears which women sometimes feel when they are pregnant and I'd like you to tell me how much each one concerned you. I'm asking for your feelings during the second and third trimester. Again the answers are:

Card 5 (1)
Duplicate (2-6)

Not at all	Somewhat	Moderately	Quite a bit	Extremely
1	2	3	4	5

Q48) How anxious were you about losing the pregnancy or having the babies die? (507)

Q49) How anxious were you about the health of the babies? (eg fear of prematurity or birth defects) (508)

Q50) What about concern about your own health? (509)

Q51) How anxious were you (are you) about giving birth? (510)

Q52) How much have you felt sad or depressed about the pregnancy reduction? (511)

Q53) How anxious were you (are you) about the idea of being a parent? (512)

Q54) How concerned have you been about financial matters? (513)

Q55) Have you had any other concerns about the pregnancy? How much has this bothered you? (514)

Specify:_____

Instrument Pregnancy Reduction Interview

Q56) Which was your biggest concern during the pregnancy?

(Code with Question Number 48-55) ___ ___ (515-516)

Q57) How have you felt about the prospect of having twins (or triplets)?

_____

_____

_____

Now I'd like to ask you about emotions which you may have had at various times from before you became pregnant, up to now. The specific emotions I'm going to ask about are happiness, sadness, anxiety, relief, and guilt. Again, the answers are:

Not at all	Somewhat	Moderately	Quite a bit	Extremely
1	2	3	4	5

Q58) During the month before you became pregnant, how much did you feel...

a) happiness or well-being ___ (517)

b) sadness or depression ___ (518)

c) anxiety or worry ___ (519)

d) relief ___ (520)

e) guilt ___ (521)

Q59) During the time between when you discovered that you had a multiple pregnancy and a day or two before you went for the reduction, how much did you feel....

a) happiness or well-being ___ (522)

b) sadness or depression ___ (523)

c) anxiety or worry ___ (524)

d) relief ___ (525)

e) guilt ___ (526)

Instrument

Pregnancy Reduction Interview

Not at all		Moderately	Quite a bit	Extremely
1	Somewhat 2	3	4	5

Q60) At the doctor's office, just before and during the procedure, how much did you feel....

a) happiness or well-being ____ (527)

b) sadness or depression ____ (528)

c) anxiety or worry ____ (529)

d) relief ____ (530)

e) guilt ____ (531)

Q61) During the week after the termination, how much did you feel...

a) happiness or well-being ____ (532)

b) sadness or depression ____ (533)

c) anxiety or worry ____ (534)

d) relief ____ (535)

e) guilt ____ (536)

Q62) During your second trimester, how much did you feel...

a) happiness or well-being ____ (537)

b) sadness or depression ____ (538)

c) anxiety or worry ____ (539)

d) relief ____ (540)

e) guilt ____ (541)

Instrument Pregnancy Reduction Interview

Not at all		Moderately	Quite a bit	Extremely
1	Somewhat 2	3	4	5

(If applicable...)
Q63) During your third trimester, how much did you feel....

a) happiness or well-being ____(542)

b) sadness or depression ____(543)

c) anxiety or worry ____(544)

d) relief ____(545)

e) guilt ____(546)

(If applicable...)
Q64) During the first two weeks after giving birth, how much did you feel...

a) happiness or well-being ____(547)

b) sadness or depression ____(548)

c) anxiety or worry ____(549)

d) relief ____(550)

e) guilt ____(551)

(If applicable...)
Q65) During the first two weeks after your miscarriage, how much did you feel....

a) happiness or well-being ____(552)

b) sadness or depression ____(553)

c) anxiety or worry ____(554)

d) relief ____(555)

e) guilt ____(556)

Q66) Did you have any other emotions which you would like to mention? At what points did you experience this emotion? How strongly did you feel it?

_____

_____

_____

Code time by Question Number 58-65: (557-558)

Code strength of emotion (1-5) (559)

Q67) During the time you were pregnant, were there any major changes or events in your life which affected you either positively or negatively? (such as a job change, death in the family, etc.) (560)

1. No 2. Yes

What happened?_____

_____

Q68) How positive or negative was this event for you? (If more than one life event mentioned, code the one which had the greatest impact.) (561)

1. Very Negative
2. Somewhat Negative
3. Neutral
4. Somewhat Positive
5. Very Positive
9. NA

Q69) Do you ever think about what it may have been like if you had not had the reduction? What thoughts do you have about this? (562)

_____

_____

(If answer is difficult to code then probe:
So you sometimes feel relief?
or... So you sometimes feel regret?)

1. No thoughts about what it would have been like
2. Relief stated or implied
3. Ambivalence stated or implied
4. Regret stated or implied
8. Other

_____

Instrument

Pregnancy Reduction Interview

Q70) Do you ever think about the unborn fetuses? What do you think about?

_____

_____

Subject mentions wondering about the unborn fetus(es)'

1) physical appearance	1) No	2) Yes	____(563)
2) personality traits	1) No	2) Yes	____(564)
3) gender	1) No	2) Yes	____(565)
4) impact on pregnancy	1) No	2) Yes	____(566)
5) impact on parenting demands	1) No	2) Yes	____(567)
6) impact on living child(ren)	1) No	2) Yes	____(568)
7) Other _____	1) No	2) Yes	____(569)

Q71) How often do you think about this? ____(570)

1) Never
2) Less than once a month
3) Once or twice a month
4) Weekly
5) 2 or 3 times a week
6) Daily

Q72) If you could do it over again would you still choose to have the procedure? ____(571)

1) No 2) Yes

Q73) Would you do anything differently? ____(572)

1) No 2) Yes

What? _____

_____

_____

Q74) **What advice would you give to other couples in your situation?**

_____

_____

_____

Q75) **Which was more stressful, infertility treatment and worrying about getting pregnant, or having a multiple pregnancy and needing the reduction?** (573)

1. Infertility much more stressful
2. Infertility somewhat more stressful
3. Both equally stressful
4. Reduction somewhat more stressful
5. Reduction much more stressful

(For women who have miscarried)

Q76) **Do you think that your miscarriage was related in any way to the pregnancy reduction?** (574)

1. No 2. Yes

(For women who have given birth)

Q77) **Do you think that the pregnancy reduction affects your feelings as a mother now?** (575)

1. No 2. Yes

How so? _____

_____

Leave 576-580 BLANK

Q78) **Is there anything that you would like to add about your experience of this pregnancy, or about the multifetal reduction?**

_____

_____

_____

Instrument

Card 6 (1) Duplicate (2-6)

DEPRESSION SECTION -- PAST NINE MONTHS

In the past nine months, since _____, have you been depressed or "blue" for as long as a week?

1. No 2. Yes

(If no, skip to p.34) (607)

PAST DEPRESSION QUESTIONS

1) Did this depression follow some kind of change or stress in your life? What happened?

_____

2) When was it? When did it start?
Date_____ number of months ago... started ___ ___ ___ (608-610)

3) How long did it last? weeks lasted ..... ___ ___ ___ (611-613)

4) When did it end? number of months ago... ended ___ ___ ___ (614-616)

DID DEPRESSION START...
1. before pregnancy
2. after pregnancy before termination
3. after termination during pregnancy
4. at or after miscarriage
5. after birth

(617)

DID DEPRESSION END ...
1. before pregnancy
2. after pregnancy before termination
3. after termination during pregnancy
4. at or after miscarriage
5. after birth
6. ONGOING

(618)

IF DEPRESSION IS ONGOING, SKIP TO CURRENT DEPRESSION, P.34

5) How severe was the stress you were under during this period of depression? Would you say it was..

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(619)

Instrument

6a) During that time did you seek help from anyone like a doctor, minister, or did anyone suggest that you seek help? Or did you act differently with people -- family, at work, or at school?

1. No 2. Yes (620)

6b) How incapacitated were you in carrying out your usual activities?
Please describe:_____

APPETITE

7) During that depression did you have any change in your appetite? How different from your usual appetite?

0	Don't remember	4	Moderate	(621)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

8) Did your appetite decrease or increase?

1	No Change	4	Fluctuated	(622)
2	Decreased	9	NA	
3	Increased			

9) Did your weight change from your usual weight during the depression?

1	No Change	4	Fluctuated	(623)
2	Decreased	9	NA	
3	Increased			

10) How many pounds did you loose or gain? POUNDS... ___ ___ ___ (624-626)

SEXUAL INTEREST

11) Was there any change in your sexual interest? How different was this from your usual interest in sex?

0	Don't remember	4	Moderate	(627)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

12) Did your sexual interest decrease or increase?

1	No Change	4	Fluctuated	(628)
2	Decreased	9	NA	
3	Increased			

Instrument

SLEEP PROBLEMS

13) During that depression, did you have any trouble sleeping -- like getting to sleep, staying asleep, or waking up early in the morning and not being able to get back to sleep even though you wanted to? How much trouble did you have?

0	Don't remember	4	Moderate	(629)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

14) Trouble getting to sleep? 1. No 2. Yes (630)

15) Trouble staying asleep? 1. No 2. Yes (631)

16) Trouble waking up earlier than usual? 1. No 2. Yes (632)

17) How many hours less sleep did you get compared with your usual night's sleep?

Hours less than usual... (633-634)

18) During that depression, was there a time when you were sleeping more at night? How bad did this get?

0	Don't remember	4	Moderate	(635)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

19) How much more were you sleeping as compared with your usual night's sleep?

Hours more than usual... (636-637)

20) Did you take naps during the day? 1. No 2. Yes (638)

21) Do you take naps when you're not depressed? 1. No 2. Yes (639)

22) Did you spend more time in bed, although not asleep? 1. No 2. Yes (640)

23) How much more time did you spend in bed on an average day, during the worst week?

Hours more than usual... (641-642)

Instrument

PHYSICAL MOVEMENT

24) What about your physical movements during that depression - did you notice any change in yourself - either being unable to sit still, or the opposite -- being slowed down and having trouble moving?

0	Don't remember	4	Moderate	(643)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

PHYSICAL MOVEMENT - AGITATION

25) During that depression were there times that you were unable to sit still? 1. No 2. Yes (644)

26) Did you have to move or pace up and down continuously? 1. No 2. Yes (645)

27) Did you wring your hands or pull on or rub your clothing, hair or skin? 1. No 2. Yes (646)

28) Did any of these last for at least a few days? How many days? days lasted..... (647-649)

29) How bad did this movement get?

0	Don't remember	4	Moderate	(650)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

PHYSICAL MOVEMENT - SLOWED DOWN

30) During that depression were there times that you didn't move as quickly as usual? 1. No 2. Yes (651)

31) Did you speak more slowly? Or find it hard to start talking or answer a question? 1. No 2. Yes (652)

32) Did you talk a lot less than usual? 1. No 2. Yes (653)

33) Did this last for at least a few days? How many days? days lasted ..... (654-656)

Instrument

34) How badly were you slowed down?

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(657)

35) Did you have a feeling of leaden paralysis in your body? 1. No 2. Yes (658)

ENERGY/ MOTIVATION/ PLEASURE

36) During that depression did you have less energy than usual to do things? Did you tire more easily? How bad was it? (Do not include loss of interest, only energy.)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(659)

37) During that depression, were you able to mobilize yourself to do things? 1. No 2. Yes (660)

38) Did you find yourself putting things off, procrastinating? 1. No 2. Yes (661)

39) How bad did your lack of motivation get?

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(662)

40) During that depression did you find that you had lost interest in or got less pleasure from things that you usually enjoyed -- like your job, sex, friends, family, news, hobbies, watching tv, reading?

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(663)

41) Was there any one thing you still enjoyed as much as usual? 1. No 2. Yes (664)

Specify: _____

42) Did you find that sometimes you could enjoy things once you started them (if someone took you out to a party, for example) even if you hadn't looked forward to it? 1. No 2. Yes (665)

Instrument

43) In general, would you say that you experienced less than half the pleasure you usually do when you are not depressed? 1. No 2. Yes (666)

44) During that depression, did you have trouble concentrating? Was your thinking slowed down? Did you have any problem at work or reading because of it? In general, how bad did your lack of concentration get? (667)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

45) During that depression, did you blame yourself for anything you had done or not done? How bad did those feelings get? (668)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

46)During that depression, how bad did your mood get? Did you feel as if you didn't care about anything anymore? How severe would you say that the depression was? (669)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

47) Was this the worst depression you ever had? 1.No 2. Yes (670)

47) Did the mood come and go? Or was it persistant? (671)

1. Came & Went 2. Persistant

48) During that depression did you feel pessimistic or hopeless about the future? Did you feel that things would never change or get better? How bad did your pessimistic feelings get? (672)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

Instrument

SUICIDAL IDEATION

49) During that depression, did you think about death? Did you wish that something would happen to you? Or wish that you would never wake up? Did you think about suicide?

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(673)

50) Did you have some idea or a plan about how to kill yourself? 1. No 2. Yes

(674)

Specify:_____

51) During that depression, did you do anything that could have killed you? 1. No 2. Yes

(675)

Specify:_____

52) Did you really want to die? 1. No 2. Yes

(676)

53) What happened as a result of that act?

Specify:_____

leave 677-680 BLANK

Instrument

Card 7 (1) Duplicate (2-6)

DEPRESSION SECTION -- CURRENT

Do you feel you are depressed right now?

1. No 2. Yes (707)

CURRENT DEPRESSION QUESTIONS

1) Did this depression follow some kind of change or stress in your life? What happened?

_____

2) When did it start?
Date_____ number of months ago... started (709-710)

3) How long has it lasted so far? weeks lasted ..... (711-713)

DID DEPRESSION START...
1. before pregnancy
2. after pregnancy before termination (714)
3. after termination during pregnancy
4. at or after miscarriage
5. after birth

CURRENT STATE WITH REGARD TO PREGNANCY....
1. before pregnancy
2. after pregnancy before termination (715)
3. after termination during pregnancy
4. at or after miscarriage
5. after birth

4) How severe is the stress you are under during this period of depression? Would you say it is..

0	Don't remember	4	Moderate	(716)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

5) During this time have you sought help from anyone like a doctor, minister, or did anyone suggest that you seek help? Or did you act differently with people -- family, at work, or at school?

1. No 2. Yes (717)

6) How incapacitated have you been in carrying out your usual activities?
Please describe:_____

APPETITE

7) During this depression have you had any change in your appetite? How different from your usual appetite?

0	Don't remember	4	Moderate	(718)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

8) Has your appetite decreased or increased?

1	No Change	4	Fluctuated	(719)
2	Decreased	9	NA	
3	Increased			

9) Has your weight changed? How?

1	No Change	4	Fluctuated	(720)
2	Decreased	9	NA	
3	Increased			

10) How many pounds? POUNDS... ___ ___ ___ (721-723)

SEXUAL INTEREST

11) Have you noticed ny change in your sexual interest? How much of a difference?

0	Don't remember	4	Moderate	(724)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

12) Has your sexual interest decreased or increased?

1	No Change	4	Fluctuated	(725)
2	Decreased	9	NA	
3	Increased			

Instrument

SLEEP PROBLEMS

13) During this depression, have you had any trouble sleeping -- like getting to sleep, staying asleep, or waking up early in the morning and not being able to get back to sleep even though you wanted to? How much trouble have you had?

0	Don't remember	4	Moderate	(726)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

14) Trouble getting to sleep? 1. No 2. Yes (727)

15) Trouble staying asleep? 1. No 2. Yes (728)

16) Trouble waking up earlier than usual? 1. No 2. Yes (729)

17) How many hours less sleep compared with your usual night's sleep?
Hours less than usual... (730-731)

18) During this depression, has there been a time when you were sleeping more at night? How different?

0	Don't remember	4	Moderate	(732)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

19) How much more have you been sleeping as compared with your usual night's sleep?
Hours more than usual... (733-734)

20) Have you been taking naps during the day? 1. No 2. Yes (735)

21) Do you take naps when you're not depressed? 1. No 2. Yes (736)

22) Have you been spending more time in bed, although not asleep? 1. No 2. Yes (737)

23) How much more time have you spent in bed on an average day, during the worst week?
Hours more than usual... (738-739)

Instrument

PHYSICAL MOVEMENT

24) What about your physical movements during this depression - have you noticed any change in yourself - either being unable to sit still, or the opposite -- being slowed down and having trouble moving?

0	Don't remember	4	Moderate	(740)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

PHYSICAL MOVEMENT - AGITATION

25) During this depression have there been times that you were unable to sit still? 1. No 2. Yes (741)

26) Have you had to move or pace up and down continuously? 1. No 2. Yes (742)

27) Have you wrung your hands or pulled on or rub your clothing, hair, or skin? 1. No 2. Yes (743)

28) Have any of these lasted for at least a few days? How many days? Days lasted... (744-746)

29) How bad has this movement gotten?

0	Don't remember	4	Moderate	(747)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

PHYSICAL MOVEMENT - SLOWED DOWN

30) During this depression have there been times that you didn't move as quickly as usual? 1. No 2. Yes (748)

31) Have you spoken more slowly? Or found it hard to start talking or answer a question? 1. No 2. Yes (749)

32) Have you talked a lot less than usual? 1. No 2. Yes (750)

33) Has this lasted for at least a few days? How many days? days lasted ..... (751-753)

34) How badly have you been slowed down?

0	Don't remember	4	Moderate	(754)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

35) Have you had a feeling of leaden paralysis in your body? 1. No 2. Yes (756)

ENERGY/ MOTIVATION/ PLEASURE

36) During this depression have you had less energy than usual to do things? Do you tire more easily? How bad had it been? (Do not include loss of interest, only energy.)

0	Don't remember	4	Moderate	(756)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

37) During this depression, have you been able to mobilize yourself to do things? 1. No 2. Yes (757)

38) Have you been putting things off, procrastinating? 1. No 2. Yes (758)

39) How bad has the lack of motivation been?

0	Don't remember	4	Moderate	(759)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

40) During this depression have you found that you lost interest in or got less pleasure from things that you usually enjoyed -- like your job, sex, friends, family, news, hobbies, watching tv, reading? How much of a change is that?

0	Don't remember	4	Moderate	(760)
1	None	5	Severe	
2	Minimal	6	Extreme	
3	Mild	9	NA	

41) Is there any one thing you still enjoy as much as usual? 1. No 2. Yes (761)

Specify: _____

Instrument

42) Can you sometimes enjoy things once you start them (if someone took you out to a party, for example) even if you hadn't looked forward to it? 1. No 2. Yes (762)

43) In general, would you say that you have experienced less than half the pleasure you usually do when you are not depressed? 1. No 2. Yes (763)

44) Have you had trouble concentrating or is your thinking slowed down? Have you had any problem at work or reading because of it? In general, how bad has your lack of concentration been? (764)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

45) Have you blamed yourself yourself for anything you have done or not done? How bad have these feelings been? (765)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

46) How bad has your mood been? (probe if needed: Have you felt that you didn't care about anything anymore?) (766)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

47) Is this the worst depression you ever had? 1.No 2. Yes (767)

47) Does the mood come and go? Or is it persistant? (768)

1. Came & Went 2. Persistant

48) During this depression have you felt pessimistic or hopeless about the future? Have you felt that things would never change or get better? How bad has that feeling been? (769)

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

Instrument

SUICIDAL IDEATION

49) During this depression, have you thought about death or suicide ore wished that you would never wake up? How bad has it been?

0	Don't remember	4	Moderate
1	None	5	Severe
2	Minimal	6	Extreme
3	Mild	9	NA

(770)

50) Have you had some idea or a plan about how to kill yourself? 1. No 2. Yes

(771)

Specify:_____

51) During this depression, have you done anything that could have killed you? 1. No 2. Yes

(772)

Specify:_____

52) Did (do) you really want to die?

1. No 2. Yes

(773)

53) What happened as a result of that act?

Specify:_____

Leave 774-780 Blank

IF SUBJECT ADMITS TO CURRENT SUICIDAL IDEATION, INTERVIEWER MUST OBTAIN SUFFICIENT CLINICAL HISTORY TO DETERMINE IF AN INTERVENTION IS REQUIRED.

END

Appendix C: Rank Order Depression Calculations

The severity of each subjects' depression was calculated by adding up the number and severity of depressive symptoms and then adding a calculation for the length of the depressive episode.

The sections of the instrument concerning depression are found from questions 607 to 773 (on pages 273 to 286). In general, if a question was coded as "Yes" it represented a positive depressive symptom, and was coded as "2". For each "Yes" answer, a value of 2 was added to the woman's total depression score, while 1 was added for a negative response.

In a minority of cases, responding "No" indicated a symptom of depression. For these questions, recoding was conducted so that "No" was given the value of 2 (Questions 660, 664, 665, 757, 761, and 762). If a question was not answered it was valued as zero. If a question was answered "not applicable" it was given a value of 1.

For subjective clinical reasons, a few questions were considered to deserve special weighting. These were questions 670 and 767 (Was this the worst depression ever?); questions 671 and 768 (Did the mood come and go or was it persistent); questions 674 and 771 (Was there suicidal ideation?); and questions 675 and 772 (Was there suicidal behavior?). Instead of valuing "Yes" answers as 2, these

questions were give 6 points in order to indicate their importance as indicators of depressive disorder.

Many questions in the depression section were answered in other than a "Yes" or "No" format. The questions which concerned severity of symptoms were given values which correlated with their severity ratings. For example, if a woman reported that the stress of the depression was "extreme" - coded as "6" - the answer was given a value of 6 in the equation.

There were also questions which indicated the length of time a particular symptom had been experienced, such as number of days during which symptoms of physical agitation had been experienced (questions 647 and 744). For the purposes of this severity calculation, such questions were not included.

After adding up all of a subject's depressive symptoms, and adding the severity value of those symptoms, a calculation was made for the overall length of the depression. This calculation consisted of taking the square root of the total number of weeks a woman reported being depressed and then multiplying by 2. Because the DSM III- R differentiates between depressions that last longer than 2 weeks and those that are shorter, an additional 10 points was added for each woman whose depression lasted longer than 2 weeks.

All values for the depressive episode were added so that each subject received a total depression severity score. If a subject reported no depression her score equaled zero. The range of depression scores fell between 204 for the most severe episode of depression, and 58 for the mildest reported depressive episode. As a final step, all depressive episode scores were rank ordered.

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