

PSYCHOSOCIAL VARIABLES
ASSOCIATED WITH THE CONTRACEPTIVE PRACTICES
OF ABORTION PATIENTS

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ABSTRACT

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The psychological correlates of the contraceptive practices of 100 childless, unmarried abortion patients between the ages of 18 and 32 were systematically evaluated in the present study. The women were assigned to one of three groups: the pill/IUD, other contraceptive method, or no contraceptive method group, on the basis of their self-reported contraceptive behaviour during the month in which they conceived. The women's pre-conception contraceptive practice was found to be representative of their contraceptive use patterns over time. A standardized interview was conducted with each woman, following which a battery of eight psychological measures was administered. Multivariate analysis of variance, followed by univariate analyses of variance and stepwise discriminant analysis, were the main techniques of data analysis. The results of the multivariate analysis of variance revealed that the linear combination of the 18 response variables differentiated among the groups. As predicted, the pill/IUD users were found to have the most liberal contraceptive attitudes, the most complete contraceptive knowledge, and the least ineffective contraceptive acceptance; followed in turn by the other method and no method users. Only the differences between the pill/IUD group and the noncontraceptors were significant for these variables. The other method group demonstrated significantly more behavioural stability, nonsuffering set, and vigilance, and significantly less chance taking than the no method group, as expected. However, the pill/IUD group scored at an intermediate level on all of these measures, which was not an expected finding. The univariate results were reinforced by those from the discriminant analysis which revealed that the other method group was maximally discriminated from the no method group by a chance taking-behavioural appropriateness factor, and from the pill/IUD group by a contraceptive knowledge and behaviour factor. Group

differences were also found on interview questions pertaining to the quality of the woman's relationship with her partner and the frequency of sexual intercourse. The results supported the theoretical formulation of contraceptive behaviour developed by Byrne (Byrne, 1977a, 1977b; Byrne, Jazwinski, DeNinno, & Fisher, 1977) and extended by Fisher (Fisher, Byrne, Edmunds, Miller, Kelley, & White, 1979). The model suggests that differential emotional orientations to sexuality may serve as distal determinants of contraceptive use, acting through relevant attitudes and normative beliefs to affect behaviour; while the quality of the sexual relationship is a situational factor that may be related to contraceptive use independently of other factors. The results are also discussed in terms of the fruitfulness of focusing on pregnancy-related chance taking in further contraceptive research and the necessity for longitudinal predictive psychological studies of contraceptive behaviour.

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"Each couple engaging in sexual intercourse is influenced by a variety of internalized beliefs, emotions, attitudes, dispositions, expectancies, imaginative fancies, and physiological imperatives. The addition of contraception to that interaction involves a series of discrete behavioral acts....research is beginning to clarify the multiplicity of variables operative at each step."

Byrne, 1979.

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INTRODUCTION

Fertility control has been a concern of women and men since earliest recorded time. There are reports of both individual attempts to control fertility and group efforts to limit population expansion dating back to 1850 B.C. in ancient Egypt, Greece, Israel, and Rome (Bishop, 1974).

In the early 1960's highly effective contraceptive methods were introduced and came into wide circulation in Western society, making fertility control theoretically possible for every couple (Swinton, 1974). It was at this time that oral contraceptives, the modern intrauterine device (IUD), and female sterilization by laparoscopy were added to the birth control arsenal of mechanical barriers, spermicides, and natural methods that had been widely used previously. Not only was there improved technology for controlling fertility, but there was increasing social pressure to do so because of the overpopulation problem.

Contraceptive Use in North America

According to the Report of the Committee on the Operation of the Abortion Law (Badgley, Caron, & Powell, 1977), in 1976 44% of sexually active, contraceptive Canadian women were using the

birth control pill (pill), 26% were using sterilization, and 6% were using the IUD as methods of birth control. Use of the condom had decreased from 25% in the 1950's to 7% in 1976, and use of the diaphragm had decreased from 25% to 2%. Among sexually active women in this national population-based survey only 18% did not use any form of contraception.

These figures, although not directly comparable, are similar to American statistics on contraceptive use among married and unmarried women. The National Survey of Family Growth, a survey of a national area probability sample of married women 15-44 years old conducted in 1973 and 1976, indicated that in 1976 68% of American married couples of reproductive age were using contraception (Mosher, 1981). This compared with 65% in 1970 (Westoff, 1976a) and 51% in 1960 (Ford, 1979). In 1976, more than two-thirds of the couples who were using birth control were using such highly effective methods as the pill, sterilization, and the IUD. When statistics for condom and diaphragm use are included, a full 85% can be considered to have been employing relatively effective methods (Ford, 1978; Mosher, 1981). The 32% of couples who were not found to be practising contraception was composed of 13% who were pregnant, trying to get pregnant, or in the postpartum period, and 11% who were sterile or subfecund. This means that a mere 8% of married couples were not using contraception and were presumably fully subject to the risk of undesired pregnancy. Westoff (1976a) in reporting on the 1973 Na-

tional Survey of Family Growth, suggested that it was highly probable that by the 1980's almost all American married couples at risk for unplanned pregnancy would be using contraception and that they would almost exclusively be selecting highly effective methods.

The figures for contraceptive use among unmarried women in the United States are not as high, but showed similar improvement during the 1970's. Reporting on a national probability sample of never-married 15-19 year old women conducted in 1976, and comparing the results with those of a similar survey conducted in 1971, Zelnik and Kantner (1977, 1978) stated that among this group of women there had been an increase in the prevalence of both premarital intercourse and contraceptive practice.

In 1971 contraceptive use among sexually active teenage women was found to be irregular and, except at the older ages, predominantly reliant on less effective methods such as condoms, withdrawal, and douching. Although the majority of the sexually experienced sample had used birth control methods at one time or another, fewer than half had used contraceptives at the time of their last sexual intercourse. The data from the 1976 survey revealed dramatic increases for all ages, in the proportion of sexually experienced respondents who had always used contraception. In 1971, 18% of the adolescent women reported having always used contraception, while in 1976 30% made this report. The proportion of young women who had used birth control at last in-

tercourse also showed a marked increase, from 45% in 1971 to 64% in 1976. These improvements in contraceptive practice among American teenagers were, however, accompanied by an increase in the percentage of respondents who had never used contraception, from 17% in 1971 to 25% in 1976.

Among adolescent contraceptors, reliance on the pill had more than doubled since 1971, and was decidedly the most popular method. Use of the IUD, although still fairly limited in this age group, had also shown a substantial increase, nearly doubling between 1971 and 1976. Reliance on the condom, the douche, and withdrawal, the three most popular methods in 1971, had decreased markedly (Zelnic & Kantner, 1977, 1978).

The results of the Zelnic and Kantner (1977, 1978) study clearly illustrated that although sexually experienced teenagers were less effective contraceptors than their married American counterparts, they were using contraceptive methods in greater numbers and with more regularity than teenagers had five years earlier. There had also been a marked increase in reliance on the more effective methods for preventing pregnancy among these young women.

The documented upward trends in the number of married and unmarried American women using contraception and relying on the more effective methods of pregnancy prevention have probably been paralleled in Canada. However, the degree of improvement in Canada is unknown as only one national survey on contraceptive use

(Badgley, Caron, & Powell, 1977) has been conducted to date (Barrett, 1980; LeBlanc, Note 1). In the United States these trends in contraceptive use were partially responsible for the decline in the number of unintended births between the early 1960's and the mid 1970's and they have probably continued to have this effect up to the present time (Anderson, 1981; Stewart, 1975; Westoff, 1976b, 1981). In Canada, the birth rate dropped from 17.5 to 15.5 per 1,000 persons between 1970 and 1977 (WHO, Health Conditions in the Americas, 1973-1976, 1978; WHO, World Health Statistics Annual, 1980); in part due to the increased use of contraception (Badgley, Caron, & Powell, 1977).

Unplanned Pregnancy in North America

Despite the fact that the majority of the North American population is fairly knowledgeable about and holds favourable attitudes toward contraceptive availability and use (Family Planning Perspectives, Digest, 1979b; Finkel & Finkel, 1975; Luker, 1975; Russo & Brackbill, 1973) a large number of unplanned pregnancies still occur in North America each year. It is difficult to obtain a reliable estimate of the number of unplanned pregnancies occurring annually in a given country. However, it is reasonable to assume that the majority of pregnancies terminated by induced abortion are unintended and unwanted. Their number provides one index of unplanned fertility.

According to a report issued by Statistics Canada, 65,855 legal abortions were performed in Canada in 1980, representing an abortion rate of 17.9¹ (Statistics Canada; Basic Facts on Therapeutic Abortion, Canada, 1980; 1982). When the number of abortions performed illegally in Canada and legally in the United States on Canadian residents is taken into consideration, it is estimated that nearly one out of every five pregnancies conceived by Canadian women was terminated by abortion in 1980 (McDaniel & Krotki, 1979; Statistics Canada; Therapeutic Abortions, Canada, Advance Information, 1978; 1979).

In 1979 there were 43,492 nonmarital births in Canada, which is equivalent to approximately 12% of the total number of live-births². There were also 26,221 first births to adolescents between the ages of 15 and 19 (Statistics Canada; Vital Statistics, Volume 1; Births and Deaths, 1979; 1981). Approximately half of these first births were to single women and a sizeable proportion of the remainder were conceived premaritally and led to premature marriages. Again, it is reasonable to suggest that the majority of these nonmarital births and first births to adolescents were unplanned.

Finally, married couples have been found to have a considerable number of unwanted births. Although there are no Canadian statistics, results from the 1976 American National Survey of

¹ Number of abortions per 100 estimated livebirths.

² These figures do not include data from Newfoundland.

Family Growth (Anderson, 1981) indicated that for married women 15-44 years old, 9% of the livebirths occurring in the 12 months prior to the survey interview were unwanted and 23% were mis-timed. Although the proportion of marital livebirths reported to be unwanted or mis-timed has decreased steadily since the early 1960's in association with the widespread adoption of effective contraception, the findings from this survey still suggest that at least 250,000 of the livebirths occurring in the United States in 1975 were unwanted and that over 1 million were unplanned (Anderson, 1981; WHO; Health Conditions in the Americas, 1973-1976; 1978).

Problems Associated with Unplanned Pregnancy

Numbers alone do not permit a complete understanding of the problem of unplanned fertility. The cost, both to the individual and society, is considerable. There is a strong positive relationship between the too frequent and ill-timed arrival of unplanned children, and physical, mental, and social ill health in the family and community (Schwenger, 1974).

Teenage mothers and the premaritally pregnant are more likely to endure serious health, social and psychological difficulties. Adolescent pregnancy is associated with higher rates of toxemia, anemia, complications of the puerperium, and maternal death (Fielding, 1978). High rates of marital disharmony, separation, and divorce have been found among those who enter into

early marriages necessitated by unintended pregnancies (McCarthy & Menken, 1979; Presser, 1980). Premarital pregnancy is associated with reduced educational attainment, lower job status and satisfaction, and long-term economic disadvantage (including lower income, diminished asset holdings, and increased welfare dependency) (Card & Wise, 1978; Chilman, 1980; Freedman & Thornton, 1979; Moore, 1978). Pregnant adolescents have also been found to commit suicide at a rate ten times that of the general population (Cvetkovich, Grote, Bjorseth, & Sarkissian, 1977).

Pregnant teenagers and premaritally pregnant women generally receive less adequate prenatal care and are more likely to deliver low birth weight, premature infants who are at greater risk for neonatal complications (Fielding, 1978). The children of teenage mothers have been found to suffer deficits in cognitive development (Baldwin & Cain, 1980). Early childbearing may also negatively affect the children's social and emotional development and their school adjustment (Baldwin & Cain, 1980).

Unplanned higher order pregnancies among married women often occur when the woman is at an advanced and hazardous age for childbearing. These unintended pregnancies expose both mother and child to increased medical risks (Schwenger, 1974).

Abortion as a solution to unwanted pregnancy can be economically, psychologically, and socially costly. The hospital care legally required for pregnancy termination in Canada is expensive (Badgley, Caron, & Powell, 1977; Watt, 1974). Many women find

the decision to seek an abortion highly stressful (Bracken, 1977) and the psychological sequelae of abortion, although rarely severe, can be disturbing to a minority of women (Greenglass, 1977; Shusterman, 1976). Stress is often placed on the relationship between the woman and her partner (Lee, 1969; Peck & Marcus, 1966; Shusterman, 1976). In addition, although the findings to date are equivocal, abortion may have negative implications for women's health, their subsequent fertility, and the outcome of their future pregnancies (Berger, Tietze, Pakter, & Katz, 1974; Beric & Kupresanin, 1971; Bracken, 1978; Tietze & Lewit, 1971, 1972).

Decreasing the number of unplanned pregnancies in Canada is a desirable goal from all standpoints. It would serve to improve or at least maintain the quality of life for parents and children, decrease maternal and infant mortality rates, which are excessively high in Canada (Schwenger, 1974); improve maternal and infant health, place less economic strain on the family and society, and allow women in general, and teenage women in particular, to achieve broader career and life goals.

Factors Associated with Contraceptive Behaviour

The focus of a great deal of fertility control research in this country and abroad in recent years has been on the delineation of factors that contribute to or are associated with the use or non-use of contraception.

Sociolegal Factors Associated with Contraception

There are a number of well documented factors that partially account for the less than optimum use of contraceptive methods by Canadian women and their partners, and the resultant unintended pregnancies. Although family planning agencies have existed in Canada for more than thirty years and contraceptives have been available in pharmacies and through physicians since the late 1950's (Ball, 1974), it was not until 1969 that the ban on disseminating birth control information and selling contraceptives was removed from the Criminal Code of Canada (Swinton, 1974). Access to birth control information and means was consequently limited in Canada prior to 1969, and under the law the highly motivated, better educated, economically advantaged, urban segments of Canadian society were favoured (Ball, 1974; Swinton, 1974). The training of medical and other health professionals in the area of family planning suffered from strict interpretation of the law prior to 1969 (Ball, 1974), and even today few facilities exist in Canada for training professionals or volunteers interested in providing family planning services (Badgley, Caron, & Powell, 1977).

The shortage of family planning clinics in this country has also seriously limited the dissemination of contraceptive information and the distribution of birth control products. As of 1971 only 66 hospital, health department, and private family planning clinics were operating across the country, including lo-

cal Family Planning Associations. If one clinic to every 30,000 population were made the Canadian objective³, some 700 clinics would be needed (Ball, 1974; Fortier, 1974).

Contraceptive Method Factors

Technological deficiencies in fertility control products also account for a portion of the unintended pregnancies that occur each year (Ball, 1974; Tietze, 1974). The pill and the IUD, the two methods that provide the greatest protection against pregnancy, do not eliminate its possibility altogether and have numerous undesirable and hazardous side effects associated with their use (Hubbard, 1977). The barrier methods have fewer side effects, but have higher failure rates (Hubbard, 1977). The fact that many contraceptive techniques are aesthetically unpleasant or inconvenient to use, require medical attention, or hamper sexual spontaneity present additional drawbacks to their use (Badgley, Caron, & Powell, 1977; Lindemann, 1974). Some women and their partners reject, misuse, or do not initiate the use of contraceptive methods for these reasons. Others experience method failures while conscientiously following a contraceptive regimen.

³ A ratio of one clinic to 55,000 population has been found to be quite inadequate in Britain (Ball, 1974).

Psychological Factors Associated with Contraception

The previously noted obstacles do not alone account for the fact that Canadians have not as yet become an example of Bumpass and Westoff's (1970) "perfect contraceptive population", a model in which couples and individuals avoid having more children than they want and regulate the timing of each birth. Needle (1975) and others (Byrne, Jazwinski, DeNinno, & Fisher, 1977; Fox 1977b; Miller, 1976; Werner & Middlestadt, 1979) have encouraged researchers in fertility planning to view consistent, effective contraception as a demanding and highly complex behaviour. As such, contraception has been presumed to be determined by and associated with numerous, often interacting, psychological variables (Bardwick, 1975; Fisher, Byrne, Edmunds, Miller, Kelley, & White, 1979; Smith, 1978). Delineating the role of psychological factors in contraceptive behaviour has increasingly been the target of investigation of population and social psychologists over the past decade. Population psychology is still very much in its infancy, however, and as Mindick and Oskamp (1979) have pointed out "neither the field of population psychology nor the specific area of contraceptive research has anything approaching a dominant research paradigm" (p. 4). The majority of the work on contraceptive behaviour consists of atheoretical investigations of general personality constructs. However, several psychological theories particular to contraceptive behaviour have emerged quite recently. Byrne and his colleagues (Byrne, 1977a, 1977b; Byrne,

Jazwinski, DeNinno, & Fisher, 1977; Fisher, Fisher, & Byrne, 1977; White, Fisher, Byrne, & Kingma, Note 2) have focused on individual differences in affective reactions to sexual issues to predict contraceptive use and related attitudes. Fishbein and his associates (Ajzen & Fishbein, 1973; Davidson & Jaccard, 1975; Fishbein, 1972; Jaccard & Davidson, 1972) have emphasized salient attitudes and normative beliefs as determinants of contraceptive behaviour. Still other investigators (Cvetkovich & Grote, 1981, in press; Fisher et al., 1979; Foreit & Foreit, 1978, 1981; Fujita, Wagner, & Pion, 1971; Reiss, Banwart, & Foreman, 1975) have examined the characteristics of the sexual relationship within which contraceptive decisions are made.

A unifying formulation of contraceptive behaviour that takes into account emotional responses to sexual stimuli, attitudes, and relationship variables has been proposed by Fisher, Byrne, Edmunds, Miller, Kelley, & White (1979). Fisher and his colleagues (1979) speculate that differential emotional orientations to sexuality may serve as distal determinants of contraceptive use, acting through more proximal attitudes and normative beliefs to effect behaviour; while the quality of the sexual relationship may be a situational factor that is related to contraceptive use independently of the other factors. However, until such time as Fisher and his associates expand on this theoretical outline, specifying the pathways and nature of the effects, researchers investigating the psychology of contraception must draw from the

somewhat scattered collection of findings reported in the literature.

Byrne's model of contraceptive behaviour outlines four essential steps in the process of taking effective action to avoid pregnancy (Byrne, Jazwinski, DeNinno, & Fisher, 1977). The four steps in the Sexual Behavior Sequence (Byrne, 1977b) include admitting to oneself that sexual intercourse is likely to occur; publicly acknowledging one's sexual intentions by procuring contraceptive services and/or products; communicating with one's partner about sex and contraception; and, finally, practising contraception consistently. According to Byrne, whether or not an individual will initiate and successfully complete such a sequence of behaviour is determined by a number of factors including intelligence, the belief that one does or does not control one's own fate, and the extent of one's birth control knowledge (Byrne et al., 1977). The most important determining factor, however, is the affective reaction experienced by the potential contraceptive at each stage in the contraceptive sequence.

The sexual socialization process that individuals go through during the course of their development leaves them with a mixture of positive and negative feelings about their sexuality (Byrne, 1977a; Fox, 1977a; Monsour & Stewart, 1973). Byrne (1977a) proposed that individuals can be placed along a continuum of negative-positive affect with regard to sexual issues. Individuals who predominantly experience negative affective reactions in re-

response to sexual cues, erotophobes, have been found to be less likely to use birth control (Byrne, 1977a; Byrne, Jazwinski, DeNinno, & Fisher, 1977; White, Fisher, Byrne, & Kingma, Note 2). Byrne contended that the more negative, anxious, or guilty individuals are concerning sex, the more likely they are to be at risk for unwanted pregnancy. Negative affective responses concerning sex are rarely strong enough to inhibit sexual behaviour completely but, according to Byrne (1977a), they do inhibit the use of contraceptives by serving as impediments to the execution of the four steps in the Sexual Behavior Sequence.

The sexually negative individual is less likely to anticipate future events and admit that sexual intercourse might occur; thus sexual contact becomes a spontaneous occurrence. The erotophobe is also more likely to experience contraceptive shame, to be hampered in his/her efforts to obtain contraceptive services or methods, and to evaluate contraceptive methods as less effective, natural, and safe (Fisher, Fisher, & Byrne, 1977). Communicating with sexual partners about sexual and contraceptive practices is more difficult for erotophobes. Finally, erotophobes are less likely to continue to practise contraception and are more likely to prefer contraceptive methods that do not require them to touch their genitals (Byrne, 1977a). In contrast, individuals who experience positive emotions in reaction to sexual matters, erotophiles, have been found to be more likely to use contraceptives and to use them effectively.

Further research by Byrne and his colleagues has shown that erotophobes hold more conservative attitudes toward sexuality, contraception, and abortion; have less adequate sexual and contraceptive knowledge; and participate in sexual intercourse less often, with less satisfaction (Byrne et al., 1977; Fisher, Byrne, Edmunds, Miller, Kelley, & White, 1979; White, Fisher, Byrne, & Kingma, Note 2). The results of other studies (Kane & Lackenbruch, 1973; Lindemann, 1974; Upchurch, 1978) lend support to Byrne's theoretical formulation and findings by showing an association between sex guilt and ineffective use of contraception. Still other authors have reported that conservative or negative attitudes towards sex, contraception, and abortion are associated with the non-use or irregular use of birth control (Davidson & Jaccard, 1975, 1979; Delamater & MacCorquodale, 1978; Joe, Jones, Noel, & Roberts, 1979; Jorgensen, 1980; Osborn & Silkey, 1980; Reiss, Banwart, & Foreman, 1975).

A relation between sex-role attitudes and fertility plans has repeatedly been documented. Nontraditional sex-role attitudes have been shown to be associated with lower expected family size among single students (McLaughlin, 1974; Scanzoni, 1976; Wrigley & Stokes, 1977), and with smaller actual family size among married women (Clarkson, Vogel, Broverman, Broverman, & Rosenkrantz, 1970; Scanzoni, 1975). Allgeier (1977) found that androgynous women desired significantly fewer children. The research has only recently been expanded to include investigations of the

relationship between nontraditional sex-role norms and contraceptive behaviour. According to Fox (1977b), modern sex-role attitudes would be more likely to foster contraceptive use because contraception would play a crucial role in allowing women to translate modern beliefs into action. Fox (1977b) did indeed find that effective contraceptive use and nontraditional sex-role attitudes were associated, and similar results have been found in studies of Turkish, Mexican, British, and American women (Goldberg, 1974, 1975; Priestnall, Pilkington, & Moffat, 1978; Rosen & Ager, 1981).

Numerous studies have demonstrated that a lack of reproductive and contraceptive knowledge is linked with ineffective contraceptive practice (Foreit & Foreit, 1981; Furstenberg, Gordis, & Markowitz, 1969; Goldsmith, Gabrielson, Gabrielson, Matthews, & Potts, 1972; Gough, 1973; Mindick & Oskamp, 1979). Most women of reproductive age have some knowledge of the various types of birth control available and of the means of gaining access to family planning services. However, misinformation about reproductive physiology, pregnancy risk, and the ability of the various birth control methods to reduce that risk is quite prevalent (Foreit & Foreit, 1981; Zelnik & Kantner, 1979). In addition, there is a considerable amount of misunderstanding concerning the mechanics and side-effects of birth control (Family Planning Perspectives, Digest, 1979a; Zelnik & Kantner, 1979).

A theme which emerges repeatedly in the literature on the psychology of fertility control is that effective contraception is related to a sense of personal control, powerfulness, or self-esteem (Bardwick, 1973; Dignan, 1979; Fox, 1977b; Gough, 1973; Groat & Neal, 1967, 1973; Harvey, 1976; Lundy, 1972; MacDonald, 1970; Meyerwitz & Malev, 1973; Neal & Groat, 1980; Rosen & Ager, 1981). According to Fox (1977b) feelings of personal control and self-worth enable individuals to appreciate and attribute considerable importance to the risks of unprotected intercourse. Protection against these risks then takes precedence over sexual gratification. However, researchers investigating the association between locus of control orientation and fertility planning have reported inconsistent findings. An internal locus of control, that is a sense of personal control over life and world events, predominates among college females who are contraceptive users (Lundy, 1972; MacDonald, 1970). Similar constructs, such as subjective efficacy (Mukherjee, 1981) and perceived competence (Rosen & Ager, 1981) have also been found to be associated with contraceptive adoption. Blignault and Brown (1979) found that locus of control related to attitudes towards birth control, but not to contraceptive knowledge or practice, while Herold, Goodwin, and Lero (1979) found no relationship between locus of control and contraceptive attitudes or use.

Differences in locus of control orientation between users of more and less effective contraceptive methods are also unclear.

Gough (1973) found no significant differences on Rotter's Internal-External Locus of Control scale among women separated into four groups on the basis of their preference for different contraceptive methods and Harvey (1976) did not find a significant difference between risky and safe contraceptors on this dimension. Fox (1977b) on the other hand, found that women with an internal locus of control and nontraditional sex-role attitudes used the more effective methods of birth control.

A number of authors have attempted to describe the skills and personality characteristics of the effective and consistent contraceptive. Maturity; the ability to anticipate consequences, think in terms of long-range goals, and plan realistically; the capacity to monitor behaviour and impulses; the ability to resist hazardous or risky external demands; and the potential to act confidently in interpersonal, particularly heterosexual, relationships all appear to be important (Bardwick, 1975; Fisher, Fisher, & Byrne, 1977; Jorgenson, 1978; Miller, 1973a, 1973b, 1974, 1976; Mindick & Oskamp, 1979; Mukherjee, 1981; Pohlman, 1969; Sandberg & Jacobs, 1971).

Chance taking has received particular attention in the literature (Cvetkovich & Grote, 1981; Luker, 1975; Miller, 1973b). Practising contraception requires a decision to do so. Luker (1975) asserted that this decision is based on the utility values assigned to contraception and pregnancy, and results in a cost-benefit "set" toward risk taking. The degree of actual risk tak-

ing that occurs, that is the effectiveness of contraceptive practice, will further depend upon a subjective estimate of pregnancy risk and the willingness to seek abortion. Several authors have shown that, in making hypothetical estimates, sexually active women tend to over-estimate the pregnancy risk associated with various birth control methods or with the non-use of contraception (Cvetkovich & Grote, 1981; Foreit & Foreit, 1981). This would imply that contraceptive risk taking is not always due to a direct under-evaluation of pregnancy risk, as might be expected. Rather, it has been proposed that noncontraceptors fail to adequately apply general probability estimates to personal family planning decisions; somehow adhering to the unrealistic belief that they are exempt from the risk of impregnation or are subject to a lower risk (Cvetkovich & Grote, 1981; Foreit & Foreit, 1981).

Attitudes toward various types of birth control or individual tolerance for different contraceptive methods have been implicated in contraceptive non-use or misuse (Byrne, 1977a; Cvetkovich & Grote, 1981; Houser & Beckman, 1978). Byrne (1977a) has shown that use of the barrier methods tends to be associated with an erotophilic orientation. Cvetkovich and Grote (1981) reported that use of predominantly male (condom) or female (pill) methods of birth control is associated with different arrays of attitudes, role taking skills, communication patterns, and relationship characteristics. Houser and Beckman (1978) found differenc-

es in women's perceptions of the effectiveness, interference with sexual enjoyment, convenience, and desirability of various birth control methods; but only a small portion of the variance in contraceptive usage could be accounted for by the particular methods' perceived attributes.

Finally, the quality and duration of the single woman's relationship with her sexual partner has repeatedly been shown to be associated with contraceptive behaviour (Cvetkovich & Grote, 1981; Foreit & Foreit, 1978, 1981; Fujita, Wagner, & Pion, 1971). Women who report higher levels of emotional involvement (Cvetkovich & Grote, 1981; Maxwell, Sack, Frary, & Keller, 1977), dyadic commitment (Reiss, Banwart, & Foreman, 1975), stability (Fisher et al., 1979; Foreit & Foreit, 1978, 1981; Fujita, Wagner, & Pion, 1971), and exclusivity (Delamater & MacCorquodale, 1978) in their relationships are more likely to use contraception. Greater involvement with a sexual partner may promote a woman's acceptance of her sexuality and thus increase her contraceptive vigilance (Reiss, Banwart, & Foreman, 1975; Mindick & Oskamp, 1979). Steady relationships may also facilitate discussions about the need for birth control (Delamater & MacCorquodale, 1978; Fisher et al., 1979). Finally, serious relationships augment the need for contraception. Sexual intercourse becomes more predictable and frequent in long term, stable relationships among young, single people. Increased coital frequency has consistently been found to be associated with effective use of birth control (Cvet-

Kovich & Grote, 1981; Delamater & MacCorquodale, 1978; Fisher et al., 1979; Foreit & Foreit, 1978, 1981).

Contraceptive Use Among Abortion Patients

Among women who seek abortions one would expect to find both contraceptors and noncontraceptors. Research in Canada and the United States has demonstrated that this is, in fact, the case (Badgley, Caron, & Powell, 1977; Bogen, 1974; Bracken, Grossman, & Hachamovitch, 1972; Greenglass, 1975; Kane & Lachenbruch, 1973; Luker, 1975; MacKenzie, Note 3; Miller, Note 10; Monsour & Stewart, 1973; Osofsky, Osofsky, Rajan, & Fox, 1971; Tietze, 1979; Watt, 1974). In addition, contracepting abortion patients can be further categorized according to the effectiveness of the birth control methods they use. Badgley, Caron, and Powell (1977) summarized the findings of the sole national survey of contraceptive use among Canadian abortion patients. Among a cross-section of women obtaining pregnancy terminations in 1976 in Canadian hospitals, 47% reported that they had been using birth control at the time of conception for the pregnancy they sought to abort. Twenty-six percent had discontinued use of contraception some time before they conceived, while the remaining 27% had never used birth control. The methods used by the women reporting contraceptive failure included: condom, 26%; pill, 18%; foam, 15%; rhythm, 15%; IUD, 10%; diaphragm, 4%; and other methods, 11%. The number of pill and IUD failures was observed to be unexpect-

edly high given the accepted theoretical effectiveness rates associated with these methods. Provincial variation in method use was also found, with women in Quebec indicating a somewhat greater reliance on rhythm and withdrawal, and lower levels of condom, spermicide, and diaphragm use.

Factors Associated with Contraception-Abortion Patients

Several demographic variables have been identified as predictors of use or non-use of contraceptive methods among abortion patients. Women who claim no religious preference or are Jewish, who are Hispanic or white, who have had previous abortions or stillbirths, who are married or involved in stable relationships, and who have higher levels of education are more likely to use birth control (Bracken, Grossman, & Hachamovitch, 1972; Miller, Note 10). However, the reasons behind the adoption or neglect of contraception by women who obtain abortions have only recently been focused on. The initial investigations in this area have predominantly been limited to methodologically weak interview studies of women who chose to abort. Although a number of psychological variables have been implicated in the use and non-use of birth control within this population the findings to date are merely suggestive. Monsour and Stewart (1973) found evidence of "contraceptive reluctance" in their sample of college women who had had abortions. These authors posited that the inculcation of a "conspiracy of silence" surrounding sexual matters resulted in

these women being unable to accept themselves as sexual beings and to contracept accordingly. Kane and Lachenbruch (1973) and Smith (1973) also found that the reasons abortion patients gave for not using contraceptive methods indicated a need to deny any conscious decision to engage in sexual activity. Contraceptive use implied premeditated sexual intercourse which was found to be associated with guilt. These findings concerning noncontracepting abortion patients parallel those reported by Byrne (1977a) for sexually negative individuals. Rosen and Ager (1981) determined that the use of contraception was negatively associated with traditional attitudes toward the female role among women who had experienced an unwanted pregnancy. The majority of their respondents were planning to terminate their pregnancies, and this choice for pregnancy resolution was also found to be negatively associated with traditional attitudes toward women's roles. Rosen and Ager (1981) also reported that contraceptors tended to demonstrate high levels of perceived competence, a dimension derived from Rotter's (1966) Internal-External Locus of Control Scale. Smith (1978), on the other hand, found no relationship between contraceptive practice and locus of control in her sample composed predominantly of young abortion patients.

A number of studies have suggested that lack of knowledge or misinformation regarding contraception accounts for some of the unintended pregnancies which women decide to terminate (Ford, Castelnovo-Tedesco, & Long, 1971; Melamed, 1975; Osofsky, Osof-

sky, Rajan, & Fox, 1971; Smith, 1973). Miller (1973b) and Smith (1973), in assessing the reasons for unwanted pregnancy among women who were obtaining abortions, found that misuse or fear of contraceptives, and denial or refusal to recognize the possibility of pregnancy were important factors in the non-use of contraception.

Finally, Luker (1975) investigated contraceptive risk taking and abortion within a theoretical framework that assumed that women's contraceptive behaviour was based on a rational decision making process. The contraceptive choices that women make were presumed to be based on a weighting of the immediate costs and benefits of contraceptive use against the anticipated costs and benefits of pregnancy. Luker found some support for her formulation in her interview assessment of 500 California abortion patients.

Present Study

The present study was designed to extend the systematic evaluation of psychological correlates of contraceptive behaviour to the abortion patient population⁴. Previous researchers have tended to consider abortion patients as a homogeneous group

⁴ The grounds for therapeutic abortion in Canada are that continuation of the pregnancy would or would be likely to endanger the life or health of the woman, as determined by a hospital therapeutic abortion committee (Badgley, Caron, & Powell, 1977). Not all hospitals establish abortion committees and those that do interpret the grounds for therapeutic pregnancy termination differently, imposing individual approval criteria (Badgley, Caron, & Powell, 1977; Greenglass, 1977).

(Bracken, Grossman, & Hachamovitch, 1972; Ford, Castelnuovo-Tedesco, & Long, 1972; Monsour & Stewart, 1973; Smith, 1973) resulting in a dearth of information on the psychological factors that are associated with the occurrence of the unplanned pregnancies which these women choose to abort. In contrast to previous studies, the patients in the present investigation were categorized as contraceptors or noncontraceptors according to their behaviour at the time of conception. Contraceptors were further classified as being pill or IUD users, if they had adopted these more effective methods, or other contraceptive method users, if they were using the diaphragm, spermicides, condoms, the rhythm method or withdrawal.

In extending the study of psychological factors associated with contraceptive behaviour to the abortion patient population, a one-factor (contraceptive method) multilevel (pill/IUD, other contraceptive methods, and no contraceptive method groups) research design was employed. It was expected that variables that had been found to relate to the contraceptive practices of sexually active women in general (Byrne, 1977a, 1977b; Byrne et al., 1977; Cvetkovich & Grote, 1981; Fisher et al., 1977, 1979; Foreit & Foreit, 1978, 1981; Fox, 1977b; Harvey, 1976; Lundy, 1972; Luker, 1975; MacDonald, 1970; Miller, 1973a, 1973b; Zelnik & Kantner, 1979) would be related, in a similar manner, to the contraceptive practices of abortion patients. Psychological research on contraceptive use, particularly among women experiencing unin-

tended pregnancies, still rests at the exploratory or taxonomic phase of scientific enquiry (Mindick & Oskamp, 1979) and use of a wide variety of measures has, therefore, been endorsed (Chilman, Note 4 ; Palmore, 1976). Accordingly, the abortion patients' attitudes, contraceptive knowledge, and psychological trait dimensions were assessed in the present investigation.

Hypotheses

I. On the basis of the work of Byrne and his associates (Byrne, 1977a, 1977b; Byrne et al., 1977; Fisher et al., 1977; Fisher et al., 1979; White, Fisher, Byrne, & Kingma, Note 2) and Fox (1977b), it was predicted that among abortion patients pill/IUD users would hold more liberal attitudes toward contraception, sex, abortion, and sex-roles than other contraceptive method users, who would themselves hold more liberal attitudes than non-contraceptors.

II. Research has indicated that knowledge of contraceptive methods is fairly widespread (Finkel & Finkel, 1975; Luker, 1975; Russo & Brackbill, 1973). However, specific knowledge related to the manner of correct use and the mode of action of the various contraceptive methods, which was assessed in the present study, was not expected to be equivalent for all groups of abortion patients. Byrne (1977a, 1977b) has demonstrated that erotophobes, who are generally noncontraceptors, have inadequate birth control knowledge. Therefore, it was predicted that contraceptors would possess more contraceptive knowledge than noncontraceptors.

III. Previous research has shown that an internal locus of control orientation characterizes women who are contraceptive users (Lundy, 1972; MacDonald, 1970). However, the locus of control dimension has not been found to differentiate between users of the more and less effective contraceptive methods (Gough, 1973; Harvey, 1976). It was, therefore, predicted that among abortion patients, contraceptors would have a more internal locus of control orientation than noncontraceptors.

IV. A number of psychological traits appear to be especially relevant to the issue of contraceptive practice according to both clinical and empirical reports (Bardwick, 1975; Miller, 1973a, 1973b, 1974, 1976, Note 5; Sandberg & Jacobs, 1971). The psychological trait dimensions that were selected for evaluation in the present research were: the tendency to take the initiative in relationships, particularly heterosexual relationships; to stabilize behaviour over time; to graduate responses in a manner appropriate to the circumstances; to plan realistically for the future; to adopt a positive, nonsuffering set about oneself; and to be vigilant, particularly in respect to risky external demands. It was predicted that among abortion patients, pill/IUD users would demonstrate more of these positive psychological traits than users of other contraceptive methods, who would in turn demonstrate more than noncontraceptors.

V. Chance taking with respect to pregnancy was also selected for investigation in the present study. The degree to which an

individual is prepared to take risks has repeatedly been suggested as a determining factor in contraceptive behaviour (Byrne, 1977a; Luker, 1975; Miller, 1973b). It was hypothesized that pill/IUD users would show less evidence of pregnancy related chance taking than other contraceptive method users, who would in turn show less than noncontraceptors.

VI. Another set of variables that were evaluated in the present study concerned tolerances for contraceptive methods. Perceptions of and tolerances for various birth control methods have previously been implicated in the non-use or misuse of contraception (Byrne, 1979a; Cvetkovich & Grote, 1981; Houser & Beckman, 1978). The intention was to determine whether abortion patients, using different types of birth control methods at the time of conception, could be distinguished in terms of contraceptive shame, aversion to coitus dependent methods, acceptance of ineffective contraceptive methods, and aversion to the somatic effects of contraceptives.

VII. Desire for pregnancy or pregnancy wish was also considered in this research. This construct has held a place in psychodynamic theorizing about the misuse or rejection of contraception (Ford, Castelnovo-Tedesco, & Long, 1972; Sandberg & Jacobs, 1971) for some time. It was predicted, on the basis of previous theorizing, that among abortion patients contraceptors would show less desire for pregnancy than noncontraceptors.

VIII. The quality and length of the woman's relationship with her sexual partner were the final variables examined in the present investigation. It was hypothesized that contraceptive users would describe having relationships of longer duration and superior quality, and that they would report a higher frequency of sexual intercourse than noncontraceptors. These variables have consistently been shown to be positively associated with contraceptive vigilance (Cvetkovich & Grote, 1981; Foreit & Foreit, 1978, 1981; Fujita, Wagner, & Pion, 1971; Reiss, Banwart, & Foreman, 1975).

METHOD

Respondents

The respondents who were selected for the present study were Anglophone⁵, childless, unmarried women between the ages of 18 and 32 who were having first trimester therapeutic abortions, by vacuum aspiration, performed under local anaesthesia at the Pregnancy Termination Unit of the Montreal General Hospital. Respondent selection was limited to young, unmarried, childless women because this group constitutes the largest segment of the abortion seeking population in Canada (Badgley, Caron, & Powell, 1977) and because previous research has shown that age, marital status, and parity are significantly associated with fertility behaviour (Westoff & Ryder, 1977).

As the pill and the IUD are the most effective contraceptive methods (Hubbard, 1977), are both medically mediated, and are both coitus independent, abortion patients who reported using either of these methods at the time that they conceived were assigned to Group 1 (pill/IUD group). Women who reported using a diaphragm, spermicides, condoms, the rhythm method, or withdrawal

⁵ Women were eligible to participate in the present study if they spoke English fluently and their primary language was not French.

for contraception at conception were assigned to Group 2 (other contraceptive method group). These birth control methods have lower theoretical and clinical effectiveness rates than the pill and the IUD, do not require medical attention and are coitus dependent. Finally, women who reported not using any contraceptive method at the time that they became pregnant were assigned to Group 3 (no contraceptive method group).

None of the women who were approached refused to participate in the study. Of the women who met the language, parity, marital and age criteria and were interviewed, five were eliminated from the study because they had only just become sexually active. Another six women were eliminated because they could not be classified as either other contraceptive method or no contraceptive method users. Their contraceptive practice had vacillated between these two categories during the month in which they conceived. An additional 15 women were eliminated because they did not complete two or more of the administered scales. The proportion of women who did not complete two or more scales did not differ as a function of group, $\chi^2(2) = .52, p > .05$. A total of 102 respondents comprised the final sample for the present study. The pill/IUD group consisted of 19 women, the other contraceptive method group of 51 women, and the no contraceptive method group of 32 women. It should be noted that the pill and the IUD were not both medically contraindicated for any of the women in the other methods or no method groups.

Data derived from the structured interview conducted with each respondent (see Appendix A) suggested that the women's use of contraception at the time of conception was representative of their contraceptive use patterns over time. The women in the pill/IUD, other methods, and no method groups reported that they had consistently been using the method that they used at conception for an average of 90, 59, and 40 weeks, respectively. Furthermore, the groups were found to differ significantly in the frequency with which they had engaged in unprotected sexual intercourse since first coitus, $H(2) = 27.15$, $p < .0001$. The results of the Dunn's (1964) test of multiple comparisons using rank sums revealed that the pill/IUD and other method groups did not differ significantly from one another (Dunn, $p > .05$), but that both had been unprotected significantly less often than the no method group throughout their years of sexual activity (Dunn, $p < .05$) (see Tables 1, 2, and 3).

Statistical analysis revealed that the groups did not differ significantly on the variable age, $F(2, 99) = .48$, $p > .05$, years of education, $F(2, 99) = 1.10$, $p > .05$, or on average marks obtained while attending school, $H(2) = 2.70$, $p > .05$ ⁶. The women's social class was assessed using the Blishen Socioeconomic Index, a scale based on Canadian occupational norms (Blishen, 1967). The index categorizes occupations into seven socioeconomic status levels, Level 1 being the highest. Respondents whose cur-

⁶ The Kruskal-Wallis (1952) one-way analysis of variance test, which is appropriate for ordinal data.

rent occupations could be classified in Level 1 through 3 were considered middle class, while those whose occupations could be classified in Level 4 through 7 were considered working class. Women who were not employed or were students were considered in a third category. The groups were not found to differ significantly on social class, $\chi^2(4) = 5.62, p > .05$. There was no significant difference in the proportion of Catholic and non-Catholic respondents among the three groups, $\chi^2(2) = .57, p > .05$. Neither were the groups found to differ in the strength of their religious beliefs, $H(2) = .76, p > .05$.

Nearly 9% of the women had previously been married, while the remainder had never been married. All of the women were leading single lives at the time of the abortion. No significant difference was found among the groups in the proportion of women that had previously been married, $\chi^2(2) = 1.12, p > .05$.

The average age at first sexual intercourse was 17.7 years and no significant difference was found among the groups on this variable, $F(2,99) = 1.27, p > .05$. The women first used contraception at the mean age of 18.3 years, or, for the entire sample, at an average of eight months after first coitus. No significant difference was found among the groups for age at first use of contraception, $F(2,98) = .96, p > .05$. Although the majority of the women, 63%, had had between one and five sexual partners, 20% had had more than 10 partners. The groups did not differ significantly on number of sexual partners, $\chi^2(6) = 3.28, p > .05$. Fi-

nally the majority of the women were pregnant for the first time. However, 28% of the women had been pregnant previously and were seeking repeat abortions. No significant difference was found among the groups in the number of women who had had a previous abortion, $\chi^2(2) = 2.16$, $p > .05$ (see Tables 1, 2, 4, 5, and 6).

TABLE 1

Description of Groups: Selected Group Characteristics

Characteristic	Group		
	Pill/IUD n=19	Other Method n=51	No Method/ n=32
Frequency of Unprotected Sexual Intercourse			
Always	0%	0%	13%
Most of the Time	0%	4%	22%
Sometimes	11%	22%	34%
Rarely	74%	63%	31%
Never	16%	12%	0%
Average Marks at School			
80-100	11%	29%	22%
70- 79	63%	53%	56%
60- 69	21%	18%	19%
50- 59	5%	0%	3%
Occupational Status			
Middle Class	53%	49%	31%
Working Class	37%	24%	35%
Unemployed/Students	10%	27%	34%
Religion			
Catholic	47%	49%	41%
Protestant	42%	35%	40%
Jewish	0%	4%	3%
None	11%	12%	16%
Strength of Religious Beliefs			
No Beliefs	11%	14%	6%
Very Weak/Weak	37%	33%	41%
Moderate	42%	39%	28%
Strong/Very Strong	10%	14%	25%

Continues

Selected Group Characteristics

Characteristic	Group		
	Pill/IUD n=19	Other Method n=51	No Method n=32
Marital Status			
Never Married	95%	88%	94%
Previously Married	5%	12%	6%
Number Sexual Partners			
1-2	37%	41%	29%
3-5	21%	25%	32%
6-9	21%	12%	23%
≥10	21%	22%	16%
Previous Abortion			
0	63%	70%	81%
1	37%	26%	16%
≥2	0%	4%	3%

TABLE 2

Kruskal-Wallis Analysis: Selected Group Characteristics

Characteristic	<u>df</u>	<u>H</u>	<u>p</u>
Frequency of Unprotected Sexual Intercourse	2	27.15	< .0001
Average Marks at School	2	2.70	ns
Strength of Religious Beliefs	2	0.76	ns

TABLE 3

Post Hoc Analysis: Frequency - Unprotected Intercourse

66.42 a	58.48 b	31.52
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P/I c	O	N

- a. A higher mean rank reflects a lower frequency of unprotected sexual intercourse.
- b. Mean ranks underlined by the same line do not differ significantly, Dunn, $p < .05$.
- c. P/I = Pill/IUD Group
 O = Other Contraceptive Method Group
 N = No Contraceptive Method Group

TABLE 4

Means and Standard Deviations: Group Characteristics

Characteristic	Group		
	Pill/IUD n=19	Other Method n=51	No Method n=32
Age			
<u>M</u>	22.05	23.12	22.78
<u>SD</u>	3.70	4.03	4.25
Years of Education			
<u>M</u>	13.16	13.51	12.72
<u>SD</u>	2.22	2.30	2.56
Age at First Coitus			
<u>M</u>	17.00	18.02	17.65
<u>SD</u>	1.73	2.51	2.66
Age at First Contraception			
<u>M</u>	17.58	18.51	18.23
<u>SD</u>	2.04	2.40	2.90

TABLE 5

ANOVA: Selected Group Characteristics

Characteristic	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Age					
Between Groups	2	15.75	7.88	.48	ns
Within Groups	99	1619.71	16.36		
Years of Education					
Between Groups	2	12.34	6.17	1.10	ns
Within Groups	99	555.74	5.61		
Age at First Coitus					
Between Groups	2	15.11	7.55	1.27	ns
Within Groups	99	588.86	5.95		
Age at First Contraception					
Between Groups	2	12.02	6.01	.96	ns
Within Groups	99	612.80	6.25		

TABLE 6

Chi-Square Analysis: Selected Group Characteristics

Characteristic	df	Raw Chi-Square	p
Occupational Status	4	5.62	ns
Religion Catholic/Non-Catholic	2	0.57	ns
Marital Status Never Married/Previously Married	2	1.12	ns
Number of Sexual Partners	6	3.28	ns
Previous Abortion/s	2	2.16	ns

Measures

The battery of measures that was used to test the hypotheses of the present study was composed of eight standardized questionnaires that had been used in previous fertility control research. Four attitude scales, a contraceptive knowledge scale, a locus of control measure, and selected subscales of a personal style inventory and a contraceptive preference and tolerance questionnaire were administered to all respondents (see Appendices B, C, E, and H). A brief, structured interview was used to collect information regarding demographic characteristics and sexual, contraceptive, and pregnancy history (see Appendix A).

Premarital Contraceptive Attitude Instrument (AC) (Parcel, 1975). The AC scale is a 25-item measure which assessed the degree of liberality or conservatism in contraceptive attitudes. The response format is a 5-point Likert-type scale requiring the respondent to indicate degree of agreement or disagreement with each item statement (see Appendix B). The stability and internal consistency of the AC scale has been assessed for samples of high school and undergraduate health class students and university health center users. The reported test-retest alpha coefficient for all three samples was .91. The inter-item correlation coefficients were .28, .25, and .28, respectively (Parcel, 1975). The AC scale has been used in previous research to evaluate the relationship between contraceptive attitudes and behaviour among college students (Knotts, Note 6). Single, sexually active students with positive or liberal attitudes toward the use of contraception were found to use more reliable methods of birth control than those with neutral attitudes.

Attitude Toward Sex in General Scale (AS) (Tolor, Rice, & Lahctot, 1975). The AS scale is a 15-item measure of liberality or conservatism toward sexual expression. The response format used for the present study is a 5-point Likert scale adaptation (Berger, 1978) of the original 4-point scale. Both formats require the respondent to indicate agreement or disagreement with each item statement. The test-retest reliability of the revised scale is .76 for a 5 week interval and the inter-item reliability

is .66 (Berger, 1978) (see Appendix B). The AS scale has been used in previous research to assess the attitudes toward sex held by couples practising the temperature-rhythm method of birth control (Tolor, Rice, & Lanctot, 1975), women in various stages of pregnancy (Tolor & DiGrazia, 1976), and women seeking initial and repeat abortions (Berger, 1978).

Attitude Toward Abortion Scale (AA) (Lackey & Barry, 1973).

The AA scale assesses the extent of favourable or unfavourable, that is liberal or conservative, individual attitudes toward abortion. The scale is composed of 55 items including 9 items from previously constructed and researched abortion scales, 5 pairs of items that comprise a lie scale, and 31 items reflecting favourable or unfavourable attitudes toward abortion. The response format is a 5-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree). The concurrent validity of the scale has been demonstrated by research that found a correlation coefficient of .48 between the new items on the scale and those taken from previous scales assessing attitudes toward abortion (Lackey & Barry, 1973). The content validity of the scale was established through consensual evaluation by seven judges as to whether the scale items were accepting or rejecting of abortion and an internal item analysis leading to the deletion of items that did not vary for rejecting and accepting respondents or were inconsistently scored by either group. The scale has been found to discriminate between respondents from different

cultural levels, between Protestant women and those with no religious conviction, and between respondents of different educational backgrounds and of different ages. These factors have previously been shown to influence attitudes towards abortion (Westoff, Moore, & Ryder, 1969).

Lackey and Barry (1973) reported a Pearson correlation coefficient of .90 for split-half reliability. In light of the high internal consistency of the scale and the limitations on test administration time, a revised version of the AA scale containing only half of the original items was used for the present study (see Appendix B). Berger (1978) reported a high degree of correlation (.97) between the long and short versions of the AA.

Traditional Sex-Determined Role Standards (TSDR) (Ellis & Bentler, 1973). The TSDR is a measure of individual approval of traditional sex-determined role standards or espousal of egalitarian standards. The scale consists of 38 item pairs with a forced-choice format. Normative data is available for males and females separately, as well as together. The construct validity of the scale has been suitably demonstrated. A factor analysis performed on the original 71 items of the TSDR revealed two factors which did not clearly differ in content. The items with the highest loadings on each factor were selected to form one traditional sex-role standards factor which correlated .55 and .97 with the original factors. Ellis and Bentler (1973) ascertained that the more females' self-perceptions and perceptions of fe-

males were similar to their perceptions of males, the more they were likely to indicate approval of egalitarian sex-role standards. Significant correlations for female respondents were also obtained between self-reports of intelligence, masculinity, liberalism, extralegal behaviour, and lack of religious belief, and opposition to traditional sex-role standards.

The internal consistency of the TSDR has been shown to be high, with an alpha coefficient of .91 for female respondents (Ellis & Bentler, 1973). Given the high internal reliability of the TSDR, only 19 of the original 38 item pairs were administered for the current study (see Appendix B). The long and short forms of the TSDR are highly correlated, having a correlation coefficient of .92 (Berger, 1978).

Knowledge of Contraceptive Devices and Techniques Scale (KCDT) (DelCampo, Note 7). The KCDT measures knowledge of the effectiveness, manner of use and mode of action of contraceptive methods, and of contraception-related aspects of conception. The test is composed of 26 items with a multiple-choice response format. The internal reliability of the instrument was established at .86 for a sample of 392 college students using the Kuder-Richardson 20 internal reliability measure. The test-retest Spearman's Rho reliability coefficient for a sample of 21 students for a 17 day interval was .89. Face validity is claimed for the test as the item content exclusively deals with contraceptive knowledge. The KCDT has been used in previous research examining the

relation between attitudes toward premarital sexual permissiveness and contraceptive knowledge (DelCampo, Sporakowski, & DelCampo, 1976).

The lack of availability of certain American contraceptive products in Canada, the removal of other birth control devices from the market, differences in American and Canadian trade names for particular contraceptives and recent research findings in reproductive physiology necessitated the revision of the 1973 version of the KCDT. The revised KCDT (Berger, 1978) is composed of 20 multiple-choice items (see Appendix C) and has a test-retest reliability coefficient, for a university sample, of .97 for a 3 week interval (Berger, 1978).

The Internal-External Locus of Control Scale (I/E) (Rotter, 1966). The I/E scale is a measure of individual differences in generalized beliefs about control of one's own destiny. People who believe that their destinies are controlled by forces outside themselves are considered to have an external orientation, whereas people who believe they can exercise control over their fate are considered to have an internal orientation. Research on diverse populations has demonstrated the construct validity of the scale in field and laboratory situations (Lefcourt, 1966, 1976; Rotter, 1966). The scale is composed of 29 item pairs, including 6 buffer item pairs, and the respondent is required, under forced-choice conditions, to select the one statement out of each pair which he or she most strongly believes to be true (see Appendix B).

Personal Style Inventory (PSI) (Miller, Note 5). This instrument measures psychological traits relevant to effective contraceptive use and birth planning behaviour. It measures seven psychological trait dimensions including Heterosexual Initiative (HI), Behavior Stability (BS), Graduated Responses (GR), Planning and Future Orientation (PFO), Suffering Set (SS), Vigilance (Vig) and Danger Set (see Appendices E and F). The Danger Set scale consists of a highly intercorrelated subset of items from the Vigilance scale and was not used in the present study. According to Miller (Note 5), the dimensions measured by the PSI are related to different capacities of the individual to integrate internal impulses, drives, and conscious goals with each other and with external demands, and to integrate behaviour over time. Miller (Note 5) has not defined the individual scales of the PSI but inspection of the item content allowed for the development of descriptive summaries for each scale (see Appendix G).

The PSI was constructed on the basis of a full literature review and extensive interviewing of young adult women. The six primary scales were developed on a criterion basis through in-depth interviewing of some 300 women regarding their sexual and contraceptive practices. The PSI has been administered to approximately 1,000 white, English-speaking women, 18 to 27 years of age, selected on a random basis from the San Francisco Peninsula in California. Normative data (scale score means and standard deviations) are available for a never-married, a just-mar-

ried and a just-mothered subgroup as well as for the total normative population. Comparisons with the normative data were not possible because raw item scores, rather than standardized scores, were used in the present study to facilitate computation.

The PSI consists of 90 items with a 6-point scale response format. The scale ranges from TT (the statement is very true for you) to FF (the statement is very false for you). The internal consistency of the six PSI scales administered in the present research has been assessed. The Kuder-Richardson coefficients for the six scales are .65 (HI), .66 (BS), .49 (GR), .72 (PFO), .41 (SS), and .60 (Vig). These scales have also been shown to have high test-retest reliability, with coefficients of .87 (HI), .93 (BS), .78 (GR), .91 (PFO), .81(SS), and .84 (Vig), over a 2 week interval.

Contraceptive Attitude Questionnaire (CAQ) (Miller, Note 5).

The CAQ measures contraceptive preferences and tolerances, and pregnancy-related tendencies. The items for each contraceptive method preference scale were selected on the basis of their ability to discriminate, in a criterion population of 200 respondents, between women who would or would not use a particular contraceptive method in the future. The contraceptive tolerance and pregnancy-related tendency scales were developed by applying factor analytic and correlational cluster techniques to the data obtained from the criterion and normative populations. The CAQ has been researched in the same manner as the PSI (Miller, Note 5)

and normative data are available for a total sample of 965 women. Again comparisons with the normative data were not possible due to the use of raw item scores in scale score computations. The CAQ contains 64 items, each of which a person responds to on a 4-point Likert-type scale ranging from 1 (agree completely) to 4 (disagree completely).

Internal consistency and stability data for the 19 scales of the CAQ are available. For the purposes of the present study only six scales of the CAQ, Chance Taking (CT), Contraceptive Shame (CS), Coitus Dependent Aversion (Long Form) (CDA), Ineffective Contraceptive Acceptance (ICA), Somatic Effects Aversion (SEA), and Pregnancy Wish (PW), were used (see Appendices H and I). Descriptive summaries of these scales were also developed due to the lack of formal definitions (see Appendix J). The Kuder-Richardson internal reliability coefficients and test-retest reliability coefficients for a 4 week interval for these six scales are .63 and .91 (CT), .55 and .67 (CS), .48 and .67 (CDA), .40 and .77 (ICA), .42 and .62 (SEA), and .30 and .70 (PW).

Procedure

Women who were scheduled for out-patient first trimester therapeutic abortions at the Pregnancy Termination Unit of the Montreal General Hospital were approached as they arrived for their appointments. They were individually escorted to a private interview room where the study was briefly explained to them. The

women were asked to read a consent form (see Appendix A) which described the study, stated that participation was voluntary, and stressed that confidentiality and anonymity were assured. The waiting room in the Pregnancy Termination Unit was available to women who chose not to take part in the research and the nursing staff were on duty to attend to their needs, but all of the women who were approached consented to participate. The women were asked to initial and date the consent form to indicate their willingness to take part in the study. Individual structured interviews (see Appendix A) were then conducted with all women in order to collect demographic data, and information about sexual and contraceptive practices, relationship with the partner responsible for the pregnancy, and circumstances surrounding the abortion. The interview required approximately 15 minutes to conduct. Following the interview the women were directed to a conference room on the ward where they completed the battery of eight standardized questionnaires in the company of other participating abortion patients. Test administration required approximately 45 minutes. Once the battery of measures was completed, the women were seen by the nursing staff for laboratory tests and counselling prior to having the abortion performed.

RESULTS

The present study is a multivariate investigation with 18 response variables. It has a one-factor (group) design with three levels. Only 100 respondents with complete data on the dependent variables were included in the main statistical analyses (pill/IUD group, $n = 19$; other contraceptive methods group, $n = 50$; no contraceptive methods group, $n = 31$).

Inspection of the data for mean-median differences, skewness, and kurtosis indicated that the univariate assumption of normality was met for the dependent variables. Results of the Bartlett-Box F test, which is appropriate for unequal sample sizes, revealed that the univariate assumption of homogeneity of variance was met for all but three of the 18 dependent variables (see Appendix K). There is considerable evidence that the Bartlett test of homogeneity of variance is overly sensitive to departures from normality of the distributions of the basic observations (Winer, 1962). However, nonparametric analyses were performed where indicated.

Inspection of the correlational matrix for the dependent variables (see Appendix L) and results of the Bartlett test of sphericity ($\chi^2 (153) = 273.25$, $p < .00001$) revealed that the

variables were mildly to moderately intercorrelated and indicated that multivariate analysis of variance (MANOVA) was an appropriate technique for data analysis. Initially, one overall MANOVA, including all 18 response variables was performed, as this is considered a conservative statistical approach (Bray & Maxwell, Note 8; Hummel & Sligo, 1971) (see Table 7). A multistage Bonferroni procedure (Larzelere & Mulaik, 1977) was carried out in order to test the significance of the within cells correlation coefficients (see Appendices L and M). Additional MANOVAs were performed based on the patterns of association among the dependent variables suggested by the results of the Bonferroni procedure (see Appendices N and O). Finally, as recommended by Cramer and Bock (1966), Bock (1976), Bray and Maxwell (Note 8), Hummel and Sligo (1971), and Tatsuoka (1976) separate univariate analyses of variance (ANOVAS) and discriminant analyses were conducted subsequent to the rejection of the multivariate null hypothesis of equal population mean vectors.

TABLE 7

MANOVA: Multivariate Tests of Significance

Test Statistic	Value	<u>df</u> hyp	<u>df</u> error	approx <u>F</u>	<u>p</u>
Pillai's <u>V</u>	.52	36	162	1.57	< .05

Methods for assessing whether or not data meet the multivariate assumption for normality are not readily accessible. According to Harris (1975) and Ito (1969), for sufficiently large sample sizes, vectors of sample means have a multivariate normal distribution. The multivariate tests are stated to be as robust to violations of their assumptions as their univariate equivalents (Harris, 1975; Tatsuoka, 1976). The data from the present investigation were found to meet the univariate assumption of normality. The results of the Box M test for homogeneity of variance-covariance matrices ($\underline{M} = 540.63$; approximate $\underline{F}(342, 9802) = 1.05$; $p > .05$) showed that the multivariate assumption of homogeneity of covariance matrices was met.

The overall one-way MANOVA was found to be significant. That is, there was a significant dispersion among the three centroids corresponding to the three mean vectors for the experimental groups. Pillai's trace criterion V (Olson, 1976) is equal to .52; approximate $\underline{F}(36, 162) = 1.57$, and results in a rejection of the null hypothesis at $\alpha = .05$ (see Table 7).

Univariate Analyses of Variance

The significant multivariate analysis of variance was followed by univariate analyses of variance in order to determine which individual response variables differentiated among the groups. In the first set of hypotheses it was predicted that among abortion patients pill/IUD users would hold more liberal

attitudes toward contraception, sex, sex-roles, and abortion than other contraceptive method users, who would in turn hold more liberal attitudes than noncontraceptors. The groups differed significantly on the variable attitude toward contraception (AC), $F(2,97) = 4.42$, $p < .05$. The differences among the groups approached significance for attitudes toward sex (AS), $F(2,97) = 2.73$, $p < .10$, and sex-roles (TSDR), $F(2,97) = 2.82$, $p < .10$. The groups did not, however, differ significantly in their attitude toward abortion (AA), $F(2,97) = 1.32$, $p > .10$ (see Table 8). Results of the Scheffé test of individual comparisons indicated that, as predicted, the pill/IUD group had significantly more liberal attitudes toward contraception than the no method group ($p < .05$). However, the other method group held an intermediary position and did not differ significantly from either of the other two groups (Scheffé, $p > .05$) (see Table 9). The group means were in the expected direction for attitude toward sex and sex-roles, with the pill/IUD group having more liberal attitudes than the other method group, which in turn had more liberal attitudes than the no method group (see Table 10).

It was predicted that contraceptors would have more contraceptive knowledge than noncontraceptors. The groups differed significantly on contraceptive knowledge (KCDT), $F(2,97) = 4.29$, $p < .05$ (see Table 8). The prediction received partial support, in that pill/IUD users had significantly greater knowledge of contraceptive devices and techniques than no method users (Scheffé,

TABLE 8

ANOVAS: Attitude Scales, KCDT, IE, PSI, and CAQ

Dependent Variable	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
AC					
Between Groups	2	1,159.49	579.74	4.42	< .05
Within Groups	97	12,723.02	131.17		
AS					
Between Groups	2	202.24	101.12	2.73	< .10
Within Groups	97	3,599.87	37.11		
AA					
Between Groups	2	352.34	176.17	1.32	ns
Within Groups	97	12,988.26	133.90		
TSDR					
Between Groups	2	53.08	26.54	2.82	< .10
Within Groups	97	911.51	9.40		
KCDT					
Between Groups	2	138.17	69.08	4.29	< .05
Within Groups	97	1,562.84	16.11		
IE					
Between Groups	2	3.03	1.51	0.10	ns
Within Groups	97	1,474.29	15.20		

Continues

Attitude Scales, KCDT, IE, PSI, and CAQ

Dependent Variable	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
HI					
Between Groups	2	54.69	27.35	0.55	ns
Within Groups	97	4,820.22	49.69		
BS					
Between Groups	2	684.11	342.05	3.80	< .05*
Within Groups	97	8,738.64	90.09		
GR					
Between Groups	2	72.47	36.23	1.04	ns
Within Groups	97	3,377.72	34.80		
PFO					
Between Groups	2	270.05	135.03	1.94	ns
Within Groups	97	6,752.46	69.61		
SS					
Between Groups	2	384.43	192.22	4.15	< .05
Within Groups	97	4,497.28	46.36		
Vig					
Between Groups	2	697.56	348.78	3.93	< .05
Within Groups	97	8,602.95	88.69		

Continues

Attitude Scales, KCDT, IE, PSI, and CAQ

Dependent Variable	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
CT					
Between Groups	2	132.28	66.14	7.63	< .001
Within Groups	97	840.47	8.67		
CS					
Between Groups	2	41.63	20.81	2.28	ns
Within Groups	97	886.16	9.14		
CDA					
Between Groups	2	32.89	16.45	1.01	ns
Within Groups	97	1,578.90	16.28		
ICA					
Between Groups	2	41.44	20.72	4.39	< .05
Within Groups	97	457.95	4.72		
SEA					
Between Groups	2	0.89	0.44	0.16	ns
Within Groups	97	264.10	2.72		
PW					
Between Groups	2	6.04	3.02	1.01	ns
Within Groups	97	290.71	3.00		

TABLE 9

Post Hoc Analyses: AC and KCDT

Measures			
AC	108.95 <u>b</u>	104.84 <u>c</u>	99.39

	P/I d	O	N
KCDT	10.26 <u>b</u>	9.12	7.07

	P/I	O	N

- a. A higher score reflects a more liberal attitude.
 b. A higher score reflects greater contraceptive knowledge.
 c. Means underlined by the same line do not differ significantly, Scheffé, $p < .05$.
 d. P/I = Pill/IUD Group
 O = Other Contraceptive Method Group
 N = No Contraceptive Method Group

$p < .05$). However, the other method users, who had an intermediate level of birth control knowledge, did not differ significantly from either of the other two groups (Scheffé, $p > .05$) (see Table 9).

The prediction that among abortion patients contraceptors would have a more internal locus of control orientation than non-contraceptors was not supported by the findings. The results of the univariate analysis of variance indicated that the groups did

TABLE 10

Means and Standard Deviations: 18 Response Variables

Dependent Measure		Group		
		Pill/IUD n=19	Other Method n=50	No Method n=31
AC	M	108.95	104.84	99.39
	SD	9.09	10.65	13.76
AS	M	60.95	58.28	56.81
	SD	4.14	6.26	6.76
AA	M	113.16	113.58	109.42
	SD	11.95	10.65	12.73
TSDR	M	16.47	16.08	14.65
	SD	2.89	2.74	3.62
KCDT	M	10.26	9.12	7.07
	SD	3.98	3.57	4.67
IE	M	12.47	12.20	12.58
	SD	3.27	4.48	3.15
HI	M	46.32	44.96	44.16
	SD	7.32	7.72	5.59
BS	M	55.16	59.42	53.74
	SD	8.71	10.19	8.73
GR	M	43.05	43.20	41.32
	SD	5.33	6.34	5.47
PFO	M	41.74	44.00	40.32
	SD	8.31	8.30	8.43
SS	M	52.26	52.70	48.36
	SD	6.37	6.78	7.10
Vig	M	51.79	55.04	49.07
	SD	5.07	10.70	9.18

Continues

Dependent Measure		Group		
		Pill/IUD n=19	Other Method n=50	No Method n=31
CT	<u>M</u>	21.21	21.76	19.16
	<u>SD</u>	2.80	2.69	3.39
CS	<u>M</u>	26.37	25.00	24.52
	<u>SD</u>	1.92	3.49	2.73
CDA	<u>M</u>	14.68	16.14	15.32
	<u>SD</u>	3.32	4.27	4.04
ICA	<u>M</u>	12.63	12.06	10.90
	<u>SD</u>	2.32	2.12	2.17
SEA	<u>M</u>	4.68	4.44	4.45
	<u>SD</u>	1.06	1.73	1.80
PW	<u>M</u>	10.74	10.56	10.10
	<u>SD</u>	1.41	1.69	9.96

not differ significantly in locus of control orientation (I/E), $F(2,97) = .10$, $p > .05$ (see Table 8).

The next set of hypotheses dealt with psychological trait dimensions that appear to be relevant to effective contraceptive practice. It was predicted that pill/IUD users would achieve higher scores on scales of the Personal Style Inventory (Miller, Note 5) than other contraceptive method users, who would in turn achieve higher scores than noncontraceptors. Higher scores denote

greater evidence of the positive psychological traits measured by the inventory. Statistical analyses revealed that there was a significant difference among the groups on Behavioral Stability (BS), $F(2,97) = 3.80$, $p < .05$; Suffering Set (SS), $F(2,97) = 4.15$, $p < .05$; and Vigilance (Vig), $F(2,97) = 3.93$, $p < .05$ (see Table 8). The other contraceptive method group had significantly higher scores on Behavior Stability, Suffering Set, and Vigilance than the no method group (Scheffé, $p < .05$). However, contrary to prediction, the pill/IUD group's scores were at an intermediate level and were not significantly different from either of the other two groups' scores (Scheffé, $p > .05$) (see Table 11). A nonparametric analysis of variance was carried out for Vig, as this variable had not been found to meet the univariate assumption of homogeneity of variance. The differences among the groups approached significance for Vig, $H(2) = 5.94$, $p < .10$, using the Kruskal-Wallis ANOVA by ranks (see Table 12). Univariate analyses revealed that the groups do not differ significantly on Heterosexual Initiative (HI), $F(2,97) = .55$, $p > .05$; Graduated Response (GR), $F(2,97) = 1.04$, $p > .05$; or Planning and Future Orientation (PFO), $F(2,97) = 1.94$, $p > .05$ (see Table 8).

The next hypothesis concerned the Chance Taking scale which, like the Vigilance scale, measures risk taking but does so exclusively in relation to pregnancy. It was postulated that pill/IUD users would show less evidence of pregnancy-related chance taking than other contraceptive method users, who would in turn show

TABLE 11

Post Hoc Analyses: PSI Variables

Measures			
BS	59.42 a	55.16 b	53.74
	<u>0 c</u>	<u>P/I</u>	<u>N</u>
SS	52.70	52.26	48.36
	<u>0</u>	<u>P/I</u>	<u>N</u>
Vig	55.04	51.79	49.07
	<u>0</u>	<u>P/I</u>	<u>N</u>

- a. A higher score reflects more of the positive psychological trait.
- b. Means underlined by the same line do not differ significantly, Scheffé, $p < .05$.
- c. 0 = Other Contraceptive Method Group
P/I = Pill/IUD Group
N = No Contraceptive Method Group

less than no method users. The results of the univariate analysis of variance indicated a significant group difference for the variable Chance Taking (CT), $F(2,97) = 7.63$, $p < .001$ (see Table 8). As was predicted, the other method group showed less evidence of chance taking than the no method group (Scheffé $p < .01$). However, the pill/IUD Group showed evidence of an interme-

TABLE 12

Kruskal-Wallis ANOVA by Ranks

Dependent Variables Violating the Univariate Assumption of Homogeneity of Variance			
Dependent Variable	<u>df</u>	<u>H</u>	<u>p</u>
Vig	2	5.94	< .10
CS	2	2.20	ns
SEA	2	6.07	< .05

diate level of chance taking and did not differ significantly from either of the other two groups (Scheffé, $p > .05$) (see Table 13).

Another intention of the present research was to determine whether the three experimental groups could be distinguished in terms of their tolerance of particular varieties of contraceptive methods. The results of the univariate analyses indicated that the groups did not differ on Contraceptive Shame (CS), $F(2,97) = 2.28$, $p > .05$, Coitus Dependent Aversion (CDA), $F(22,97) = 1.01$, $p > .05$, or Somatic Effects Aversion (SEA), $F(2,97) = .16$, $p > .05$ ⁷ (see Table 8). A significant difference among the groups

⁷ The results of the Kruskal-Wallis analysis of variance by ranks for Contraceptive Shame and Somatic Effects Aversion are summarized in Table 12.

TABLE 13

Post Hoc Analyses: CAQ Variables

Measures			
CT	21.76 a	21.21 c	19.16 **
	-----	-----	-----
	O d	P/I	N
ICA	12.63 b	12.06	10.90 *
	-----	-----	-----
	P/I	O	N

- a. A higher score reflects less chance taking.
- b. A higher score reflects less ineffective contraceptive acceptance.
- c. Means underlined by the same line do not differ significantly.
 * Scheffé, $p < .05$
 ** Scheffé, $p < .01$
- d. P/I = Pill/IUD Group
 O = Other Contraceptive Method Group
 N = No Contraceptive Method Group

was found for Ineffective Contraceptive Acceptance (ICA), $F(2,97) = 4.39$, $p < .05$ (see Table 8). The pill/IUD group demonstrated less acceptance of ineffective contraceptive methods than the no method group (Scheffé, $p < .05$). However, the other method group, with an intermediate score on this scale, did not differ significantly from either of the other two groups (Scheffé, $p > .05$) (see Table 13).

The final prediction, that contraceptors would show less evidence of pregnancy wish (PW) than noncontraceptors, was not supported by the results of the univariate analysis, $F(2,97) = 1.01$, $p > .05$ (see Table 8).

Roy-Bargmann's stepdown F tests were conducted in order to evaluate the relative value of the response variables in differentiating among the groups. The results of the stepdown analysis indicated that the findings for the chance taking variable reflected a difference among the groups that could not be accounted for by a linear combination of the other 17 response variables, $F(2,80) = 4.24$, $p < .05$ (see Appendix P). That is, the Chance Taking scale measured a psychological dimension important for group differentiation that was not assessed by the other scales. The Roy-Bargmann analysis also revealed a significant group effect for suffering set with 13 of the other variables treated as covariates, $F(2,84) = 3.58$, $p < .05$ (see Appendix P).

Multistage Bonferroni Procedure and Additional MANOVAs

Additional exploratory analyses were performed based on the patterns of association among the 18 response variables suggested by the results of a multistage Bonferroni procedure (Larzelere & Mulaik, 1977). The Bonferroni procedure sets particularly stringent criteria for association. A nominal significance level of $\alpha = .10/153$ was applied for each individual test (see Appendices L and M) and 26 of the 153 intercorrelations among the dependent

variables were found to be significant. Examination of the pattern of significant associations suggested that the attitude measures (AC, AS, AA, and TSDR), KCDT, HI, and CS could be included in one multivariate analysis of variance as they tended to correlate more highly with each other than with the other variables (see Appendix L). The multivariate test statistic, Pillai's trace criterion V , indicated that the groups did not differ significantly on the vector composed of the linear combination of these seven response variables, approximate $F(14,184) = 1.18$, $p > .05$ (see Appendix N). On the basis of the significant intercorrelations, all but one of the remaining measures were included in a separate MANOVA. SEA was excluded from the analysis as it was not found to correlate highly with any of the other dependent variables. A significant group effect was found for the linear combination of the IE measure and nine subscales from the PSI and CAQ, Pillai's $V = .36$; approximate $F(20,178) = 1.96$, $p < .05$ (see Appendix O). Thus, a vector composed primarily of the psychological trait dimension and contraceptive tolerance variables differentiated among the groups, while one composed predominantly of the attitude measures did not.

Discriminant Analyses

The univariate analyses of variance described in the earlier section provided information about the individual effect of each of the dependent variables. In order to determine the underlying

dimensionality of the data and the inter-relationships among the response variables, and in order to assess whether all 18 dependent variables were necessary to achieve maximum discrimination among the groups, a stepwise discriminant analysis, using Rao's V as the stepwise criterion, was carried out (see Tables 14 and 15). Wilks' lambda, after the inclusion of the 14th variable and before the removal of Function 1, was equal to .55. This value was found to be significant using Bartlett's chi-square approximation ($V(28) = 53.43$, $p < .005$), indicating that significant discriminating power existed when only 14 variables were included in the analysis (see Table 14). The four measures which did not improve the discrimination were AS, AC, SEA and Vig. Although all 14 variables that were retained in the stepwise analysis contributed to its discriminatory power, only the addition of CT and KCDT produced significant changes in Rao's V (see Table 15). Two discriminant functions were derived with associated eigenvalues of .55 and .17. After the removal of Function 1 a larger, non-significant lambda (.86) was found, $V(13) = 14.07$, $p > .05$, but both functions were included in the subsequent analyses as the first function only accounted for 76% of the total variance (Tatsuoka, 1976) (see Table 14). The group means on the two discriminant functions are presented in Table 16, and the data are plotted in Appendix Q to illustrate the manner in which the three groups are differentiated in the two-dimensional discriminant space determined by the functions.

TABLE 14

Canonical Discriminant Functions: Stepwise Analysis

Function	Eigenvalue	Percent of Variance	Canonical Correlation
1	.55	76.41	.59
2	.17	23.59	.38

After Removal of Function	Wilks Lambda	Chi-Square	df	p
0	.55	53.43	28	<.005
1	.86	14.07	13	ns

The canonical variate correlations, which provide a measure of the independent relationship of each response variable to the discriminant functions, were inspected to elucidate the substantive nature of the functions (Bray & Maxwell, Note 8). As can be seen in Table 17, CT, SS, and BS correlate most highly with Function 1, their respective canonical variate correlations being .54, .39, and .35. Function 1 seems to represent a dimension of

TABLE 15

Stepwise Discriminant Analysis Summary Table

Step	Variable In/Out	Wilks Lambda	<u>p</u>	Rao's V	<u>p</u>	Change in Rao's V	<u>p</u>
1	CT	.86	< .001	15.27	< .001	15.27	< .001
2	KCDT	.80	< .001	23.43	< .001	8.16	< .05
3	BS	.77	< .001	28.27	< .001	4.84	< .10
4	PW	.74	< .001	33.09	< .001	4.83	< .10
5	CS	.71	< .001	36.86	< .001	3.77	ns
6	SS	.70	< .001	39.61	< .001	2.76	ns
7	IE	.67	< .001	45.34	< .0001	5.73	< .10
8	TSDR	.65	< .001	48.63	< .0001	3.28	ns
9	HI	.63	< .001	53.47	< .0001	4.84	< .10
10	GR	.61	< .001	57.18	< .0001	3.71	ns
11	CDA	.60	< .005	59.80	< .0001	2.63	ns
12	PFO	.58	< .005	63.23	< .0001	3.43	ns
13	ICA	.57	< .005	65.95	< .0001	2.72	ns
14	AA	.55	< .005	69.16	< .0001	3.21	ns

Minimum Tolerance Level of .001
 Minimum F to Enter of 1.0
 Maximum F to Remove of 1.0
 Minimum Increase in Rao's V of 0.0

chance taking and behavioural appropriateness (a positive personal set, SS; and modulated, stable responses, BS). The canonical variate correlations suggest that Function 2 is a contraceptive behaviour and knowledge dimension. CS, KCDT, and ICA correlate most highly with Function 2, their respective coefficients being .49, .43, and .41 (see Table 17).

Function 1 achieved maximal separation between the other contraceptive method (Group 2) and no method (Group 3) groups,

TABLE 16

Stepwise Discriminant Analysis: Group Centroids

Canonical Discriminant Functions Evaluated at Group Means		
Group	Function 1	Function 2
Pill/IUD (1)	0.11	0.83
Other Method (2)	0.61	-0.22
No Method (3)	-1.05	-0.16

with the pill/IUD group (Group 1) falling at an intermediate position (see Table 16 and Appendix Q). Examination of the standardized canonical discriminant function coefficients, which represent the relative contribution of the variables to the discriminant functions, revealed that Function 1 had the largest positive weights (.80 and .67) for CT and SS (see Table 18). Other method users reported less chance taking and more of a non-suffering set than no method users, while pill/IUD users reported intermediate levels (see Table 10).

Function 2 achieved maximum separation between the two contraceptive groups, with the noncontraceptors falling at an intermediate level considerably closer to the other method users (see Table 16 and Appendix Q). The standardized canonical discriminant function coefficients indicated that for Function 2 the oth-

TABLE 17

Canonical Variate Correlations, Stepwise Analysis

(Pooled Within Groups Correlations Between Canonical
Discriminant Functions and Discriminating Variables)

Discriminating Variable	Function 1	Function 2
CT	.54*	.08
SS	.39*	.13
BS	-.35*	-.26
TSDR	.29*	.26
PFO	.26*	-.13
AA	.22*	.07
GR	.20*	.07
IE	-.06*	.04
CS	.12	.45*
KCDT	.32	.43*
ICA	.34	.41*
CDA	.11	-.29*
HI	.08	.22*
PW	.17	.18*

* Variables are ordered by the function with the largest correlation and the magnitude of that correlation.

er method group was distinguished from the pill/IUD group on the basis of BS (-.62), CS (.61) and ICA (.55) (see Table 18). The other contraceptive method users reported more behavioural stability than the pill/IUD users, but, in addition, showed evidence of more contraceptive shame and ineffective contraceptive acceptance (see Table 10).

TABLE 18

Standardized Discriminant Function Coefficients

Stepwise Discriminant Analysis		
Discriminant Variable	Function 1	Function 2
AA	.22	-.32
TSDR	.44	-.08
KCDT	.27	.35
IE	-.48	-.03
HI	-.47	-.08
BS	.27	-.62
GR	.24	.44
PFO	.33	.04
SS	.67	.09
CT	.80	-.39
CS	-.09	.61
CDA	-.13	-.49
ICA	-.16	.55
PW	-.58	.47

To determine the adequacy of the described discrimination, a classification analysis was conducted. Classification functions were developed applying a Bayesian adjustment (Bock, 1976) which used the sample distribution of cases within contraceptive groups as the prior probabilities. As shown in Table 19, 68% of the women were correctly classified using the two discriminant functions based on 14 of the dependent variables. The discrimination successfully classified 84% of the other method group and 71% of

the no method group. However, only 21% of the pill/IUD group were successfully classified. The remaining respondents in the pill/IUD group were predominantly classified as other method users (53%), and some 26% were classified as no method users.

TABLE 19

Classification Analysis: Stepwise Analysis

Actual Group	<u>N</u>	Predicted Group Membership					
		Pill/IUD		Other Method		No Method	
		<u>N</u>	%	<u>N</u>	%	<u>N</u>	%
Pill/IUD	19	4	21.1	10	52.6	5	26.3
Other Method	50	4	8.0	42	84.0	4	8.0
No Method	31	3	9.7	6	19.4	22	71.0

Percentage of Cases Classified Correctly: 68.0%

Relationship Variables

Finally, the women's responses to interview questions pertaining to the quality of their relationship with their partner were examined (see Tables 20 and 21). The groups differed significantly in their ratings of the quality of their relationships, $H(2) = 7.26$, $p < .05$, and in the proportion of women who had informed their partners about the unplanned pregnancy, $\chi^2 (2)$

= 5.44, $\underline{p} < .10$, and had made the decision to seek an abortion jointly with them, $\chi^2 (2) = 19.38$, $\underline{p} < .005$ (see Table 22). The contraceptive groups did not differ from each other in their assessment of the quality of their relationships (Dunn, $\underline{p} > .05$), but the women in both groups described their relationships as being more satisfactory than the noncontraceptors did (Dunn, $\underline{p} < .05$) (see Table 23). All of the women in the pill/IUD group told their partners about the pregnancy, while 82% of the other method users and 75% of the no method users did so. The pill/IUD users had also made a joint decision, with their partners, to terminate the pregnancy significantly more often than the other method users (Fleiss, $\underline{p} < .01$)^o, who in turn had made a joint decision significantly more often than the no method users (Fleiss, $\underline{p} < .01$) (see Table 23). The groups were not found to differ significantly in respect to the length of their relationships, $F(2,99) = 1.61$, $\underline{p} > .05$ (see Table 22), but the mean durations were in the expected direction (110.11, 77.59, and 73.34 weeks, respectively, for the pill/IUD, other method, and no method groups). Finally, the groups were found to differ significantly in their reports of coital frequency, $F(2,98) = 4.46$, $\underline{p} < .05$ (see Table 22). The women in the two contraceptive groups did not differ in the frequency with which they had sexual relations (Scheffe, $\underline{p} > .10$) but both groups of contraceptors engaged in sexual intercourse significantly more often than did noncontraceptors

^o The χ^2 method of testing the differences between proportions from different samples (Fleiss, 1973).

(Scheffé, $p < .10$) (see Table 23).

TABLE 20

Description of Groups: Relationship Variables

Relationship Variable	Group		
	Pill/IUD <u>n=19</u>	Other Method <u>n=51</u>	No Method <u>n=32</u>
Quality of Relationship with Partner			
Poor	0%	2%	3%
Moderate	0%	12%	38%
Good	100%	86%	59%
Informed Partner About Pregnancy			
No	0%	18%	25%
Yes	100%	82%	75%
Abortion Decision			
Made Alone/With Others	5%	47%	69%
Made with Partner	95%	53%	31%

TABLE 21

Means and Standard Deviations: Relationship Variables

Relationship Variable	Group		
	Pill/IUD <u>n=19</u>	Other Method <u>n=51</u>	No Method <u>n=32</u>
Length of Relationship With Partner (Weeks)			
<u>M</u>	110.11	77.59	73.34
<u>SD</u>	76.30	70.19	83.38
Frequency of Coitus Per Month Pre-Conception			
<u>M</u>	12.28	12.00	7.25
<u>SD</u>	4.69	8.25	7.68

TABLE 22

Tests of Significance: Relationship Variables

Test of Significance					
ANOVA	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Length of Relationship					
Between Groups	2	18,388.60	9,194.30	1.61	ns
Within Groups	99	566,581.36	5,723.04		
Frequency of Coitus Per Month Pre-Conception					
Between Groups	2	509.44	254.72	4.46	< .05
Within Groups	98	5,603.61	57.18		
Kruskal-Wallis	<u>df</u>			<u>H</u>	<u>p</u>
Quality of Relationship With Partner	2			7.26	< .05
Chi-Square	<u>df</u>			<u>χ^2</u>	<u>p</u>
Informed Partner About Pregnancy	2			5.44	< .10
Abortion Decision Made With or Without Partner	2			19.38	< .005

TABLE 23

Post Hoc Analyses: Relationship Variables

Variable				Post Hoc Test
Quality of Relationship	56.92 a	56.25 d	40.72	Dunn, $\underline{p} < .05$
	P/I	0	N	
Abortion Decision	.95 b	.53	.31	Fleiss, $\underline{p} < .01$
	P/I	0	N	
Frequency of Coitus	12.27 c	12.00	7.25	Scheffé, $\underline{p} < .10$
	P/I e	0	N	

- a. Mean ranks; a higher mean rank reflects a higher rating of the quality of the relationship.
- b. Proportion of women who made the decision to seek an abortion jointly with their partner.
- c. Mean frequency of sexual intercourse per month.
- d. Values underlined by the same line do not differ significantly.
- e. P/I = Pill/IUD Group
 0 = Other Contraceptive Method Group
 N = No Method Group

DISCUSSION

The primary purpose of the present study was to describe the particular patterns of psychological factors associated with the pre-conception contraceptive practices of abortion patients. At the most basic level the results of the overall MANOVA revealed that the linear combination of the 18 psychological response variables differentiated among pill/IUD, other contraceptive method, and no method users. That is, abortion patients ought not to be considered a homogeneous group, as they can be appropriately categorized, psychologically, according to pre-conception efforts to prevent pregnancy.

As predicted, the pill/IUD users were found to have the most liberal contraceptive attitudes and the most complete contraceptive knowledge, followed in turn by the other method and no method users. The pill/IUD group was also least likely to report accepting ineffective contraceptive methods. Only the differences between the pill/IUD users and the noncontraceptors were significant for these variables according to the univariate findings. The results of the univariate analyses further revealed that the other method group demonstrated significantly more behavioural stability, nonsuffering set, and vigilance, and significantly

less chance taking than the no method group, as expected. However, the pill/IUD group scored at an intermediate level on these measures, not differing significantly from either of the two extreme scoring groups, which was not an expected finding. The univariate results were reinforced by those from the discriminant analysis which revealed that the other method group was maximally discriminated from the no method group by a chance taking-behavioural appropriateness factor, and from the pill/IUD group by a contraceptive knowledge and behaviour factor. Finally, as predicted, the contraceptors evaluated the quality of their sexual relationships more favourably than the noncontraceptors and reported a greater frequency of sexual intercourse. Contrary to prediction, the groups did not differ in the duration of their relationships with their partners.

It appears that, among abortion patients, pre-conception use of the pill or IUD is associated with liberal attitudes, a high level of birth control knowledge, and involvement in relationships of superior quality with greater coital frequency. However, use of these birth control methods is also associated with a mild tendency toward chance taking, behavioural instability, lack of vigilance, and suffering self-perceptions. Perhaps the women who chose these methods did so because they recognized that they may not always be contraceptively stable and vigilant, in spite of their liberal birth control attitudes, sound contraceptive knowledge, and involvement in superior relationships. They

may have sought to minimize the risk of pregnancy by separating birth control from the sexual act. In this way they would lessen the opportunity for negligence. Alternatively, pill/IUD users may be over-represented in this and other (Badgley, Caron, & Powell, 1977) abortion samples (given the theoretical effectiveness rates for these methods) because unlike pill and IUD users who do not experience unintended pregnancies these women were not vigilant and consistent in following their contraceptive regimen. They may have missed pills, neglected to check the placement of the IUD, or replaced the IUD less frequently than advised. Unfortunately, the correlational and time-limited nature of the present research design does not allow for the endorsement of either explanation.

The women who chose the barrier and natural, coitus dependent methods may have done so because despite their reluctance to take chances, their positive personal set, and their involvement in relatively satisfactory relationships, they have a less positive outlook toward contraception. Compared to the pill/IUD group, the other method group had less positive attitudes toward contraception, experienced more contraceptive shame, and was more prepared to accept the less effective birth control methods. A preponderance of the items on the Contraceptive Shame scale relate to difficulties in seeking contraceptive services through medical facilities. These women may not have selected medically-mediated methods because of the necessary interaction with medi-

ical personnel. This conjecture would not entirely apply to diaphragm users, but would hold for condom, spermicide, withdrawal, and rhythm users, who were by far the majority in this respondent group. It is unlikely that the women in the other method group were not using the pill and the IUD because of concerns about their possible side effects, as no differences were found among the groups for somatic effects aversion. The findings further suggest that other method users may recognize that they are stable and vigilant enough to manage the coitus dependent methods. This group may have conceived unintended pregnancies not because of a lack of contraceptive vigilance; but rather, due to the method failures expected with these less effective methods.

It appears that fully subjecting oneself to the risk of undesired pregnancy (on interview none of the women reported that they had wanted to become pregnant at the time that they conceived) by not contracepting is associated with a poor outlook on sexual and contraceptive matters, a tendency to be involved in relationships of inferior quality, and a more negative set of psychological traits. The noncontracepting abortion patients were found to have less liberal attitudes, less adequate birth control knowledge, and greater acceptance of ineffective contraceptive methods than the pill/IUD users. They were more critical of their sexual relationships and reported being less communicative with their partners. They were also found to be less behaviourally stable and vigilant, more likely to engage in pregnancy-

related risk taking, and more apt to report a suffering personal set than the other method group. Perhaps it is not surprising that with this conservative, uninformed approach to contraception and this array of negative psychological traits these women have difficulty adopting and maintaining the use of contraceptive methods in the context of their less rewarding relationships.

Overall, it appears that for a group of young, single, childless abortion patients pre-conception use of the pill or IUD is associated with a positive contraceptive approach, the highest levels of relationship involvement and satisfaction, and moderate scores on the previously discussed psychological trait variables. Other method users show the greatest evidence of the positive psychological trait dimensions, evaluate the quality of their relationships only marginally less favourably than pill/IUD users, and have a slightly less positive contraceptive outlook than this group. The no method users have a poor birth control set, the least satisfying relationships with their partners, and the most negative psychological orientation.

Chance Taking, as an independent measure, was best able to differentiate among the groups. The univariate analyses revealed that the groups differed most highly on this variable; the Roy-Bargmann stepdown analysis indicated that there was an overall group effect for chance taking that could not be accounted for by the linear combination of the other variables; and the stepwise discriminant analysis showed that chance taking was the variable

which alone produced the greatest overall separation of the groups. The consistently positive findings for chance taking in this investigation deserve comment. The Chance Taking scale closely reflects the behaviour under investigation, as it exclusively measures pregnancy-related risk taking. According to Fishbein (Ajzen & Fishbein, 1973; Fishbein, 1972) behavioural intentions are the best predictors of actual behaviour and are, in part, derived from attitudes toward performing a certain action. Fishbein and his colleagues (Ajzen & Fishbein, 1973; Davidson & Jaccard, 1979; Fishbein, 1972) make an important distinction between attitude-toward-the-act measures and the more traditional attitude-toward-the-object scales. It would appear, on the basis of Fishbein's model, that the Chance Taking scale was able to successfully differentiate among the contraceptive groups because it is structured as an attitude-toward-the-act or behavioural intention measure. Perhaps the use of an attitude toward contraception measure that focused on behavioural intentions, that is, the individual's preparedness or intention to use birth control, would also have detected greater group differences.

The results of the discriminant analysis indicated that the first function, which appears to tap a dimension of chance taking and behavioural appropriateness, was best able to discriminate among the groups. It achieved maximal separation between the other and no contraceptive method groups and accounted for a considerable proportion of the variance. The canonical discriminant

function coefficients suggest that it may be sufficient to merely use the Chance Taking and Suffering Set scales in measuring this dimension. That is, groups of abortion patients following different pre-pregnancy contraceptive regimens differ most markedly from one another on a psychological trait dimension that can be most economically, yet fully, assessed by exploring the women's pregnancy-related risk taking and personal set. The fact that a reluctance to risk pregnancy is more characteristic of contraceptors, and that, when taken together with a tendency to evaluate personal strengths and worth highly, is best able to distinguish among contraceptive groups, is intuitively appealing. It also provides further evidence of the usefulness of the chance taking dimension in contraceptive research.

Contrary to prediction, several of the measures were not found to differentiate among the groups. The moderate sample sizes may account for some of these negative findings, having provided insufficient power to detect group differences. In other cases it appears that the level of measurement was not sufficiently sensitive or specific. In still other cases the nonsignificant findings appear to represent a lack of real differences among the groups.

Rotter's (1966) Internal-External Locus of Control scale has not been found to independently differentiate between users of more and less effective contraceptive methods (Fox, 1977b; Gough, 1973; Harvey, 1976), nor has it reliably distinguished between

contraceptors and noncontraceptors (Blignault & Brown, 1979; Herold, Goodwin, & Lero, 1979). It may be more propitious to use the recently developed Health Locus of Control scale (Wallston, Wallston, Kaplan, & Maides, 1976) in evaluating contraceptive behaviour or to attempt to develop a locus of control measure specifically related to fertility, as recommended by several authors (Blignault & Brown, 1979; Herold, Goodwin, & Lero, 1979; Strickland, 1978).

It was predicted, on the basis of previous theorizing, that the responses of contraceptors and noncontraceptors would differ on the Pregnancy Wish scale. The lack of positive findings for this scale are corroborated by the women's responses to the interview question regarding the "wantedness" of the pregnancy they had decided to abort. Other researchers (Cvetkovich & Grote, 1981; Smith, 197) have also found that young, single women do not differ in their desire for pregnancy. Rather, they differ in terms of their assessment of the negative consequences of unintended pregnancy. Future research ought to examine the utility of measuring women's assessments of the negative nature of undesired pregnancy.

Given the number of reports of a positive association between planfulness and successful contraception (Jorgenson, 1978; Mindick & Oskamp, 1979; Mukherjee, 1981) the lack of findings for the Planning and Future Orientation scale in the present study was unexpected. Contraceptive use would seem to require a cer-

tain degree of planfulness and future orientation. It is possible that women who experience unintended pregnancies are, in general, less skillful in looking to the future to make realistic plans and that intergroup differences were, therefore, not detected. Alternatively, the use of other measurement instruments such as the Future Events Test (Mindick, Oskamp, & Berger, Note 9; Stein, Sarbin, & Kulik, 1968), which has been shown to distinguish between contraceptors and noncontraceptors, may be more suitable.

The Heterosexual Initiative scale in part measures assertiveness in heterosexual relationships. Hollerbach (1980) in reviewing the literature on fertility decision making and conjugal power suggests that open communication and mutuality, elements of active decision making, are associated with successful birth planning behaviour. Standardized scales that measure relationship intensity, cooperation, or commitment may be more appropriate for contraceptive research, given the positive findings on the single-item relationship variables used in the present investigation. Sexual and contraceptive behaviours are not, after all, individual matters.

The lack of significant findings for two of the contraceptive preference measures and for attitudes toward abortion cannot easily be explained in terms of inadequacies of the measuring instruments. The negative results for Coitus Dependence and Somatic Effects Aversion add to a small body of data (Houser & Beckman,

1978; Jorgensen, 1980) which suggests that the perceived attributes of particular birth control methods do not account for contraceptive behaviour. The present findings indicate that the method use patterns of these young, single abortion patients were not differentially associated with a concern for the health effects of medical birth control methods or the inconvenience of coitus dependent methods.

The fact that the groups were not found to differ in their attitudes toward abortion is perhaps not surprising. Differences in abortion attitudes among women using various types of contraceptive methods may well exist, but the likelihood of detecting them in an abortion patient sample are reduced. Theories of attitude-behaviour consistency state that self-justification for overt actions tends to be greater when the results derive from voluntary behaviour and are psychologically costly (Kiesler, 1977). For the respondents in the present study the justification would take the form of aligning attitudes to fit the abortion seeking behaviour. It is possible that prior to conceiving the unintended pregnancies which they elected to terminate, the women in the three contraceptive groups differed in their attitudes toward abortion. However, with the advent of the pregnancy and the decision to abort they had differentially adjusted their attitudes to correspond to their behaviour. This explanation would be consistent with the attitude findings for the other sex-related topics, but cannot be supported in the absence of

pre-pregnancy abortion attitude data. The Attitude Toward Abortion scale would more profitably be used with a nonabortion sample.

It was stated earlier in this discussion of the findings that the results for the Chance Taking, Behavioral Stability, Suffering Set, and Vigilance measures, and the over-representation of pill/IUD users in this and other (Badgley, Caron, & Powell, 1977) abortion samples could be construed to suggest that other method users had experienced contraceptive failures, while pill/IUD users may have failed to follow their contraceptive regimen faithfully. In future research it would be valuable to evaluate this issue by comparing pill/IUD users and other method users who have and have not experienced unintended pregnancies. If the contraceptive failure versus failure to contracept contention is valid, then pregnant and nonpregnant pill/IUD users would be expected to differ on these variables whereas pregnant and nonpregnant users of other methods would not.

The findings from the present investigation lend support to the theoretical formulation of contraceptive behaviour espoused by Byrne and his colleagues (Byrne, 1977a, 1977b; Byrne, Jazwinski, DeNinno, & Fisher, 1977; Fisher et al., 1979). Use of the most highly effective contraceptive methods was found to be associated with liberal attitudes toward contraception and superior birth control knowledge. Although the effects only approached significance, the pill/IUD group also reported more liberal atti-

tudes toward sex and sex-roles. The pill/IUD users were maximally differentiated from the other method users on the contraceptive dimension, exhibiting less contraceptive shame and ineffective contraceptive acceptance than this group. Furthermore, those abortion patients with the least positive contraceptive outlook placed themselves at greatest risk for pregnancy by not contracepting. In his extension of the Byrne model, Fisher (Fisher et al., 1979) speculates that the erotophobia-erotophilia dimension may serve as a distal determinant of contraceptive behaviour, acting through attitudes and norms (Fishbein, 1972) to affect behaviour indirectly, albeit pervasively. Given the relatively positive results for the attitude measures it would seem fruitful, in future research, to investigate the erotophobic-erotophilic orientation directly. White, Fisher, Byrne, and Kingma (Note 2) have recently developed a standardized measure for assessing individual differences in emotional orientation to sexuality; the "Sexual Opinion Survey". Use of this instrument may shed further light on the interplay between affective responses and attitudes, and on their respective roles in determining contraceptive adoption and use. Furthermore, if Fisher's (Fisher et al., 1979) formulation is to be fully explored in future research the role of relationship variables must also be assessed. The findings of the present investigation lend additional support to the argument that contraceptive practice is, at least in part, situationally determined. Contraceptive use may be mediated by

relevant attitudes and normative beliefs, through which erotophilic-erotophobic orientations have their effect, but ultimately the behaviour may be highly context dependent. Work by Foreit and Foreit (1978), and Miller (1973b) would suggest that psychological factors are particularly potent determinants of birth control use during relationship formation, crisis, or disintegration. In addition, the ability to correctly classify pill/IUD users might be improved by considering the effect of relationship variables.

Conceptually, it is difficult to separate contraceptive behaviour patterns from pregnancy-related risk taking. Not to contracept, or to do so inadequately or irregularly, means, quite simply, that you risk pregnancy. Foreit and Foreit (1981) have pointed out that while it is obvious that practising contraception requires a decision to do so, it is not apparent that failure to contracept is also the result of a decision process. They contend that failure to contracept is a "default behaviour" not the result of a deliberate decision. These authors operationalized Luker's (1975) definition of chance taking and found no evidence that risk taking was an important component of the failure to use birth control among unmarried college women. In particular, they found that failure to use effective contraception was not associated with low estimates of pregnancy risk, high utility of pregnancy, or uniquely high willingness to seek abortion - all features of Luker's decision making model. The present investi-

gation did not address the issue of "decision making", and it may well be that noncontraceptors are not making conscious (or unconscious) decisions regarding fertility control. Nonetheless, the results of the present research indicate that abortion patients, using different methods of birth control, report differential propensities toward pregnancy-related chance taking. Moreover, this variable is best able to discriminate among the groups. The conflicting findings of the Foreit and Foreit study and the present one need to be explored further. The findings they report are for a nonpregnant college sample. Furthermore, their operational definitions of Luker's constructs are open to criticism. The costs and benefits of contraception, which are central to Luker's risk taking model, were not evaluated and the utility of pregnancy was rather indirectly measured. In addition, as Foreit and Foreit themselves point out, the risk taking estimates used in their research were not "personal" estimates. In future research on chance taking and contraceptive use, personalized estimates of pregnancy risk and the application of those estimates to personal fertility control decisions should be examined. Although women may tend to underestimate the risks of pregnancy for hypothetical situations (Cvetkovich & Grote, 1981; Foreit & Foreit, 1981), their evaluation of personal risk can be unrealistic in the other extreme. In the present research a full 62% of the noncontraceptors reported that they had felt they had "no" or "little" chance of conceiving prior to actually doing so; despite

the fact that they were having sexual intercourse an average of seven times per month and were taking no action to prevent pregnancy. Differences in risk taking between samples of women who have and have not experienced an unintended pregnancy ought to be investigated, as well. Finally, the relationship between pregnancy and other health-related risk taking should be assessed.

It is important to emphasize that in the present study the women were categorized according to their contraceptive practice at the time of conception. The literature is replete with alternative operational definitions of contraceptive use and Herold (1981) has shown that the manner in which this independent variable is defined substantially affects research findings. Herold recommends situation-specific measures, particularly those based on actual rather than theoretical method effectiveness. Mindick and Oskamp (1979), on the other hand, argue that a longer interval of measurement is preferable. Short-term contraceptive use can be expected to differ from long-term use and if the goal is to determine a valid criterion classification of a continuing behaviour, then extended measurement is preferred. Although the women's birth control use prior to conception was found to be representative of their contraceptive behaviour over time, it could still be argued that the contraceptive practice of the respondents in the present study was assessed at a distinct point in their sexual and contraceptive careers. Mindick and Oskamp's contention that it is important to look at contraceptive success

or failure over an extended period of time using multidimensional measures seems quite justified. However, their remarks do not call into question the validity of time-limited measures of behaviour. Contraceptive use is often situation specific, as Herold (1981) notes. It appears to change with the phases of a woman's life and the characteristics of her sexual relationships, and is worthy of investigation at a multitude of points along the way.

One of the limitations of much fertility control research, including the present investigation, is its correlational design. Mindick and Oskamp (1979) stress that the conclusions of retrospective and cross-sectional studies must ultimately be validated by more extensive longitudinal research. Prospective studies are few in this field, but increasingly warranted. Although the results of the present study revealed that for abortion patients there are differences in attitudes, contraceptive knowledge, and psychological traits according to contraceptive use patterns, the findings are associative rather than predictive. Psychological measurement antecedent to contraceptive adoption, sexual debut, or even menarche are necessary as a basis for prediction. Given the increasing body of evidence supportive of Byrne's Sexual Behavior Sequence and erotophobic-erotophilic construct, investigation of the socialization process that produces positive affective reactions to sexual cues would seem to be a promising direction.

Byrne (1979) has suggested that "the first goal [of fertility control research] is to be able to accurately predict precisely who is likely to utilize or fail to utilize any given method of contraception under specified circumstances" (p. 4). He states that the second goal is to devise the means to "apply what we know to bring about... voluntary behaviour change" (p. 4). While we are a long way from realizing these objectives, the results of the present study point to the fruitfulness of multiple determinant psychological studies of contraceptive behaviour and underscore the necessity for longitudinal predictive research in this area.

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APPENDIX A

Consent Form and Patient Interview

CONSENT FORM

The study in which you are about to take part proposes to look at the attitudes of women who are pregnant and wish to terminate their pregnancies.

This study will provide important information about women who seek to terminate their pregnancies for both the medical and educational professions. It is hoped that this information will provide a basis for better health care.

The information which you provide will be considered completely confidential. You may withdraw from the study at any time.

Please write your initials below to indicate that you understand the above and consent to participate in the study.

Initials _____

Date _____

File Number _____

Doctor _____

Examiner _____

Abortion Patient Questionnaire

File Number _____
Date _____
Examiner _____
LMP _____
Weeks Pregnant _____
Scorer _____
Doctor _____

1. What is your primary language?

- A. English 1
- B. French 2
- C. Other, specify _____ 3

2. What is your age? _____

3. How many years of school did you complete? _____

3a. How did you feel about attending school?

- A. Really disliked school 1
- B. Disliked school 2
- C. Neutral 3
- D. Enjoyed school 4
- E. Really enjoyed school 5

3b. On the average what marks did you obtain while attending school?

- A. 80-100 (A) 1
- B. 70-79 (B) 2
- C. 60-69 (C) 3
- D. 50-59 (D) 4
- E. below 50 (F) 5

4. What is your occupation? _____

- A. Full-time 1
- B. Part-time 2
- C. Unemployed 3

4a. Are you a student at the present time?

- No 0
- Full-time
 - A. High School 1
 - B. University 2
 - C. Post graduate 3
 - D. Other _____ 4
- Part-time
 - E. High School 5
 - F. University 6
 - G. Post graduate 7
 - H. Other _____ 8

5. What is your religion?

- A. Catholic 1
- B. Protestant 2
- C. Jewish 3
- D. Other, specify _____ 4
- E. None 5

6. How strong would you say your religious beliefs are?

- A. Very weak 1
- B. Weak 2
- C. Medium 3
- D. Strong 4
- E. Very strong 5
- F. None 6

7. What is your marital status?

- A. Single 1
- B. Engaged 2
- C. Married 3
- D. Divorced 4
- E. Widowed 5
- F. Separated 6

7a. Did your husband get you pregnant? 1
Did your regular partner get you pregnant? 2
Did someone else get you pregnant? 3

7b. Are you cohabiting?

- A. No 1
- B. Yes 2

8. What is your partner's marital status?

- A. Single 1
- B. Engaged 2
- C. Married 3
- D. Divorced 4
- E. Widowed 5
- F. Separated 6

9. Are you currently involved with your partner?

- A. No 1
- B. Yes 2

10. How long have you been involved with him?

Days _____
Months _____
Years _____

10a. Was this a one night stand?

- A. No 1
- B. Yes 2

11. What is/was the quality of this relationship?

- A. Very poor 1
- B. Poor 2
- C. Mixed 3
- D. Satisfactory 4
- E. Very satisfactory 5

12. How old were you when you first had sexual intercourse? _____

13. How many different partners have you had sexual intercourse with?

- A. One 1
- B. Two 2
- C. Three 3
- D. Four 4
- E. Five 5
- F. Six-Nine 6
- G. Ten-Fourteen 7
- H. Fifteen-Twenty 8
- I. More than Twenty 9

14. How regularly, on the average, have you had sexual intercourse since your first sexual intercourse?
- | | |
|-------------------------|---|
| A. Once a year | 1 |
| B. A few times a year | 2 |
| C. Once a month | 3 |
| D. Once a week | 4 |
| E. Several times a week | 5 |
| F. Every day | 6 |
15. Have you ever used any contraceptive methods (any method to prevent you getting pregnant)?
- | | |
|--------|---|
| A. No | 1 |
| B. Yes | 2 |
- 15a. If yes, specify which methods used.
- | | |
|-------------------------|---|
| A. Pill | 1 |
| B. Condom | 2 |
| C. IUD, Coil, Loop | 3 |
| D. Withdrawal | 4 |
| E. Rhythm | 5 |
| F. Diaphragm | 6 |
| G. Foam, Cream, Jelly | 7 |
| H. Other, specify _____ | 8 |
- 15b. If yes, how old were you when you first used a contraceptive method? _____
- 15c. Were you using any contraceptive method at the time of your first sexual intercourse?
- | | |
|-------------------|---|
| A. No | 1 |
| B. Yes | 2 |
| C. Can't remember | 3 |
- Specify method. _____
- 15d. Did you delay the occurrence of your first sexual intercourse until some contraceptive method was being used?
- | | |
|-------------------|---|
| A. No | 1 |
| B. Yes | 2 |
| C. Can't remember | 3 |
16. Since you first had sexual intercourse, how frequently have you had unprotected (against pregnancy) sexual intercourse?
- | | |
|---------------------|---|
| A. Always | 1 |
| B. Most of the time | 2 |
| C. Sometimes | 3 |
| D. Rarely | 4 |
| E. Never | 5 |
17. How often do you discuss the question of birth control with your family (ie. parents, brothers, sisters etc.), if ever?
- | | |
|--------------|---|
| A. Never | 1 |
| B. Rarely | 2 |
| C. Sometimes | 3 |
| D. Often | 4 |
- 17a. How often do you discuss birth control with your friends?
- | | |
|--------------|---|
| A. Never | 1 |
| B. Rarely | 2 |
| C. Sometimes | 3 |
| D. Often | 4 |

17b. How often do you discuss birth control with your partner(s)?

- A. Never 1
- B. Rarely 2
- C. Sometimes 3
- D. Often 4

18. Did you want to become pregnant (this time)?

- A. No 1
- B. Yes 2
- C. Don't know 3

19. Were you using a contraceptive method at the time you became pregnant (if not sure exactly what day became pregnant or if was using any method that day-ascertain what method she was using during the menstrual cycle in which she became pregnant)?

- A. No 1

If no, specify the reason.

- Lack of information 1
- Didn't know where to get contraceptive devices 2
- Felt safe during that time 3
- Too inconvenient 4
- Opposite sex responsible 5
- Too embarrassing to get contraceptive device 6
- Didn't want to appear as though prepared to have sex 7
- Wanted to be spontaneous 8
- Side effects 9
- Not planning to have sex 10
- Partner objection 11
- Thought she could not get pregnant 12
- Unavailable 13
- Broke up with partner 14
- Afraid parents would find out 15
- Doctor suggested stopping method 16
- Afraid to continue after long use 17
- Wanted to get pregnant 18
- Religious reasons 19
- Other, specify _____ 20

- B. Yes 2

If yes, specify method.

- Pill 1
- Condom 2
- IUD, Coil, Loop 3
- Withdrawal 4
- Rhythm 5
- Diaphragm 6
- Foam, Cream, Jelly 7
- Other, specify _____ 8

C. How long have you consistently been using this method/ no method of contraception.

Days _____
Months _____
Years _____

D. How many times do you have sexual relations per month? _____

20. Before becoming pregnant, what did you think your chances were of getting pregnant?

- A. Very little chance 1
- B. Little chance 2
- C. Medium 3
- D. Good chance 4
- E. Very good chance 5
- F. No chance 6

21. Before becoming pregnant, how fearful were you of getting pregnant?

- A. Very little fear 1
- B. Little fear 2
- C. Medium 3
- D. Some fear 4
- E. A lot of fear 5
- F. No fear 6

22. How do you feel about your decision to have an abortion?

- A. Strongly negative 1
- B. Negative 2
- C. Mixed feelings 3
- D. Positive 4
- E. Strongly positive 5

23. Does your partner know you are pregnant?

- A. No 1
- B. Yes 2

23a. If yes, how did he react when you told him you were pregnant?

- A. Very unhappy 1
- B. Unhappy 2
- C. Mixed feelings 3
- D. Happy 4
- E. Very unhappy 5
- F. Partner not aware 6

24. How was the decision to have an abortion reached?

- A. You decided alone 1
- B. You talked it over with partner 2
- C. Consulted with others 3
- D. Partner or parents decided 4

25. Does your partner know about your decision to have an abortion?

- A. No 1
- B. Yes 2

25a. If yes, how does he feel about the abortion?

- A. Strongly opposed 1
- B. Opposed 2
- C. Undecided 3
- D. In favour 4
- E. Strongly in favour 5
- F. Partner is not aware 6

26. What is the main reason for your decision to have an abortion?

- | | |
|--|----|
| Not married | 1 |
| Do not want to raise a child alone | 2 |
| Do not want a baby now | 3 |
| Never want to have children | 4 |
| Family is complete- want no more children | 5 |
| Fear of having to stop school | 6 |
| Fear of friends finding out | 7 |
| Fear of losing job | 8 |
| Interferes with career plans | 9 |
| Don't want parents to know | 10 |
| Isn't partner's baby | 11 |
| Partner does not want child | 12 |
| Financial reasons | 13 |
| Would have to move to a larger apartment/house | 14 |
| Endangers mental health | 15 |
| Fear of child being deformed | 16 |
| Endangers physical health | 17 |
| Too young to have a child | 18 |
| Too old to have a child | 19 |
| Other, specify _____ | 20 |

26a. If you decided to continue with the pregnancy and have the child how would that change your life?

- | | |
|---|----|
| Change in marital status-get married, get divorced | 1 |
| Change relationship with family (parents, sibs etc) | 2 |
| Change relationship with friends | 3 |
| Change relationship with partner | 4 |
| Stop schooling -woman | 5 |
| Stop schooling- partner | 6 |
| Stop working-woman | 7 |
| Start working-woman | 8 |
| Interfere with career plans-woman | 9 |
| Interfere with career plans-partner | 10 |
| Would have to move | 11 |
| Would have to find someone to care for child | 12 |
| Would create financial difficulties or strain | 13 |
| Less attention, time for other children | 14 |
| Physical health would suffer | 15 |
| Mental/Emotional health would suffer | 16 |
| Would hamper personal development, growth | 17 |
| More tied down, less personal freedom | 18 |
| Added responsibility-caring for child | 19 |
| Other, specify _____ | 20 |

27. Did you think it was possible to obtain a legal abortion in Quebec?

- | | |
|--------|---|
| A. No | 1 |
| B. Yes | 2 |

28. How easy did you think it would be to obtain an abortion in Quebec?

- | | |
|-------------------------------|---|
| A. Very difficult | 1 |
| B. Difficult | 2 |
| C. Neither easy nor difficult | 3 |
| D. Easy | 4 |
| E. Very easy | 5 |
| F. Impossible | 6 |

29. Have you ever been pregnant before?

- A. No 1
B. Yes 2

29a. If yes, how many pregnancies have you had before this one? _____

How many children have you had? _____

How many miscarriages have you had? _____

30. Have you ever had an abortion before?

- A. No 1
B. Yes 2

30a. If yes, how many abortions have you had? _____

How long ago was your most recent abortion? _____

31. Are you planning on having children in the future?

- A. No 1
B. Yes 2 If yes, how many? _____
C. Undecided 3

32. Are you planning on using contraceptives in the future?

- | | | | |
|--------------------------------|---|---------------------------------|----|
| A. No | 1 | B. Yes | 2 |
| <u>If no</u> , specify reason. | | <u>If yes</u> , specify method. | |
| Not applicable | 0 | Pills | 1 |
| No more intercourse | 1 | Condom | 2 |
| Male responsible | 2 | IUD, Coil, Loop | 3 |
| Side effects | 3 | Withdrawal | 4 |
| Religious reasons | 4 | Rhythm | 5 |
| Inconvenient | 5 | Diaphragm | 6 |
| Spontaneity | 6 | Foam, Cream, Jelly | 7 |
| Don't want to | 7 | Other | 8 |
| Want to get pregnant | 8 | Undecided | 9 |
| Other _____ | 9 | Combination | 10 |
| C. Undecided | 3 | | |

33. Did anyone accompany you to the hospital today?

- A. No 1
B. Yes 2

If yes, who?

- Nobody 0
Information not available 1
Friends 2
Father, mother 3
Other relatives 4
Professional 5
Other _____ 6
Partner 7

APPENDIX B

Patient Questionnaire
(Attitude and Locus of Control Scales)
Scales Ordered as Presented
to Study Participants

- I. The Internal-External Locus of Control Scale (I/E) (Rotter, 1966)
- II. Traditional Sex-Determined Role Standards (TSDR) (Ellis & Bentler, 1973)
Revised Version (Berger, 1978)
- III. Attitude Toward Sex in General Scale (AS) (Tolor, Rice, & Lanctot, 1975)
Revised Version (Berger, 1978)
- IV. Premarital Contraceptive Attitude Instrument (AC) (Parcel, 1975)
- V. Attitude Toward Abortion Scale (AA) (Lackey & Barry, 1973)
Revised Version (Berger, 1978)

The Internal-External Locus of Control Scale (Rotter, 1966).

Directions: This is a questionnaire to find out what opinions people have about certain events. Each item consists of a pair of alternatives lettered A or B. Please select one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer to every choice. Circle the A or B of the item which you choose as the statement more true. In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

- I. 1. A. Children get into trouble because their parents punish them too much.
B. The trouble with most children nowadays is that their parents are too easy with them.
2. A. Many of the unhappy things in people's lives are partly due to bad luck.
B. People's misfortunes result from the mistakes they make.
3. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
B. There will always be wars, no matter how hard people try to prevent them.
4. A. In the long run, people get the respect they deserve in this world.
B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. A. The idea that teachers are unfair to students is nonsense.
B. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. A. Without the right breaks one cannot be an effective leader.
B. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. A. No matter how hard you try, some people just don't like you.
B. People who can't get others to like them don't understand how to get along with others.
8. A. Heredity plays the major role in determining one's personality.
B. It is one's experiences in life which determine what they're like.
9. A. I have often found that what is going to happen will happen.
B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. A. In the case of the well prepared student there is rarely if ever, such a thing as an unfair exam.
B. Many exam questions tend to be so unrelated to course work that studying is really useless.
11. A. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
B. Getting a good job depends mainly on being in the right place at the right time.
12. A. The average citizen can have an influence in government decisions.
B. This world is run by the few people in power, and there is not much the little guy can do about it.
13. A. When I make plans, I am almost certain that I can make them work.
B. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. A. There are certain people who are just no good.
B. There is some good in everybody.
15. A. In my case, getting what I want has little or nothing to do with luck.
B. Many times we might just as well decide what to do by flipping a coin.
16. A. Who gets to be the boss often depends upon who was lucky enough to be in the right place first.
B. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17. A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand or control.
B. By taking an active part in political and social affairs the people can control world events.
18. A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
B. There is really no such thing as "luck".
19. A. One should always be willing to admit mistakes.
B. It is usually best to cover up one's mistakes.
20. A. It is hard to know whether or not a person really likes you.
B. How many friends you have depends upon how nice a person you are.
21. A. In the long run, the bad things that happen to us are balanced by the good ones.
B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. A. With enough effort we can wipe out political corruption.
B. It is difficult for people to have much control over the things politicians do in office.

23. A. Sometimes I can't understand how teachers arrive at the grades they give.
B. There is a direct connection between how hard I study and the grades I get.
24. A. A good leader expects people to decide for themselves what they should do.
B. A good leader makes it clear to everybody what their jobs are.
25. A. Many times I feel that I have little influence over the things that happen to me.
B. It is impossible for me to believe that chance or luck plays an important role in my life.
26. A. People are lonely because they don't try to be friendly.
B. There's not much use in trying hard to please people, if they like you, they like you.
27. A. There is too much emphasis on athletics in high school.
B. Team sports are an excellent way to build character.
28. A. What happens to me is my own doing.
B. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. A. Most of the time I can't understand why politicians behave the way they do.
B. In the long run the people are responsible for bad government on a national as well as local level.

Traditional Sex-Determined Role Standards (Ellis & Bentler, 1973)

- II: 1. A. A son should have use of the family car more often than a daughter.
B. A son and daughter should have the same car privileges.
2. A. In an emergency, women and children should be evacuated first.
B. Children should be first; men and women should follow.
3. A. Girls should have stricter hours than boys in a family.
B. The boys and girls should have the same curfew.
4. A. A man and woman should share expenses on a date if they both have income.
B. The man should pay.
5. A. "Dirty" stories should not be told in a woman's presence.
B. They should not be told at all, or they should be told regardless of the sex of those present.
6. A. I approve of a woman taking the aggressive role during sexual intercourse.
B. The man should always take the aggressive role.
7. A. I approve of a woman providing the financial support for the family, while the husband does the household tasks.
B. The husband should provide the money; the wife should do the housework.
8. A. Women should be given special courtesies not given to men.
B. Women should be given no more courtesies than men.

9. A. Men should not have their hair styled or dyed, or wear make-up to cover blemishes.
B. Men should have the same right to express concern over their appearance as women do.
10. A. Children should be reared with traditional sex-role stereotypes in mind.
B. Child rearing should proceed without regard for traditional sex-role stereotypes.
11. A. As long as there is a draft, both men and women should be included in it.
B. Women should not be expected to serve in the military.
12. A. A man who is really a man would not cry over a movie.
B. I approve of crying as an emotional outlet for both sexes.
13. A. Women, as well as men, should be found in top political offices.
B. Only men should be found in top political offices.
14. A. The husband's commitments should be given more weight than the wife's commitments when making important decisions.
B. The commitments of husband and wife should be given equal weight.
15. A. In a job situation, if a man has a woman superior, he need not react to her as he would to a male superior.
B. He should respond to a superior on the basis of rank, not sex.
16. A. I approve of a woman calling a man she is interested in.
B. A woman should wait for the man to call.
17. A. A man and woman should take turns driving on dates.
B. Even though both have access to a car, the man should always drive.
18. A. I approve of a woman taking the first step to start a relationship with a man.
B. The man should be the one to initiate the relationship.
19. A. Women should have the same opportunities for promotion as men if they are as qualified.
B. Men should be preferred for promotion because women quit more often, due to marriage or pregnancy.

Attitude Toward Sex in General Scale (Tolor, Rice, & Lanctot, 1975)

Directions: The following statements are meant to explore some of your feelings and attitudes toward sex in general. Read each item carefully and circle the corresponding number of the option that best expresses your feelings about the statement. For each item, use the following code.

1. AGREE STRONGLY 2. AGREE 3. UNCERTAIN 4. DISAGREE 5. DISAGREE STRONGLY

- III.
1. Too much is made of sex these days when it really isn't all that important. 1 2 3 4 5
 2. Sexual relationships should be experienced only in marriage where they properly belong. 1 2 3 4 5
 3. There is no good reason why matters of sex should not be discussed in public. 1 2 3 4 5
 4. What some people describe as pornographic literature or pictures can actually be helpful to develop a better sexual response. 1 2 3 4 5
 5. People who use a variety of positions during sexual relations are disgusting or sick. 1 2 3 4 5
 6. It is not necessarily indecent and against human nature for men to have sex with men and women with women. 1 2 3 4 5
 7. Sex is for having children and not for fun. 1 2 3 4 5
 8. The idea that some people enjoy sex in the absence of real love is quite acceptable. 1 2 3 4 5
 9. Women should ordinarily not make the first move in sexual relations with their partner. 1 2 3 4 5
 10. It's not as important for the woman to get sexual satisfaction as it is for the man. 1 2 3 4 5
 11. Most men just seek to satisfy themselves sexually at the expense of their partners. 1 2 3 4 5
 12. One indication of general happiness in marriage is having intercourse often. 1 2 3 4 5
 13. A girl need not be a virgin at the time of marriage to be a good wife. 1 2 3 4 5
 14. Sex should be enjoyed, not just endured. 1 2 3 4 5
 15. Marriage is primarily for the formation, protection and rearing of a family, and sex should be put second to this goal. 1 2 3 4 5

Premarital Contraceptive Attitude Instrument (Parcel, 1975)

1. AGREE STRONGLY 2. AGREE 3. UNCERTAIN 4. DISAGREE 5. DISAGREE STRONGLY

- IV. 1. It is important for me to plan ahead of time for contraception in the event a relationship leads to sexual intercourse. 1 2 3 4 5
2. The use of contraceptives outside of marriage cannot be justified. 1 2 3 4 5
3. The use of contraception should be an accepted practice for non-marital sexual relations. 1 2 3 4 5
4. Abstinence from premarital intercourse is preferable to artificial methods of contraception. 1 2 3 4 5
5. Any form of contraception which will aid in the achievement of a fuller sexual relationship should be used and encouraged. 1 2 3 4 5
6. Contraception is just too much trouble to bother with in non-marital relations. 1 2 3 4 5
7. The risks of using artificial methods of contraception are worth the benefits they provide. 1 2 3 4 5
8. The use of contraception distracts from the quality of a relationship. 1 2 3 4 5
9. There is nothing wrong religiously or morally with the use of contraception. 1 2 3 4 5
10. The use of any contraceptive that interferes with natural body functions is unacceptable. 1 2 3 4 5
11. I consider learning how to use and knowing where to obtain methods of contraception an important part of responsible sexual behaviour. 1 2 3 4 5
12. How anyone not married can use contraceptives is beyond me. 1 2 3 4 5
13. Effective contraception is essential to achieving sexual freedom. 1 2 3 4 5
14. I feel that it would be wrong for me to make plans ahead of time to use a contraceptive. 1 2 3 4 5
15. Anyway you look at it, it is right to use some form of contraception in non-marital sexual relations. 1 2 3 4 5
16. The use of contraception makes sexual intercourse seem dirty. 1 2 3 4 5
17. The results from using contraception are reliable. 1 2 3 4 5
18. I would rather risk pregnancy than use an artificial method of contraception. 1 2 3 4 5
19. Using a contraceptive to prevent unwanted pregnancy is a good thing to do. 1 2 3 4 5

1. AGREE STRONGLY 2. AGREE 3. UNCERTAIN 4. DISAGREE 5. DISAGREE STRONGLY

20. Physical and psychological dangers would keep me from using any form of artificial contraception. 1 2 3 4 5
21. Contraception is a positive aspect of sexual relations. 1 2 3 4 5
22. I would reject the use of contraception on the basis that it disrupts the spontaneity of sexual behaviour. 1 2 3 4 5
23. I would feel guilty going into a drugstore and buying contraceptives. 1 2 3 4 5
24. I would not make prior plans for using contraceptives because that would mean I was planning on having intercourse. 1 2 3 4 5
25. I believe all means of contraception should be available to anyone who wants them. 1 2 3 4 5

Attitude Toward Abortion Scale (Lackey & Barry, 1973)

- V. 1. Laws against abortion should be more strongly enforced. 1 2 3 4 5
2. Less rigid abortion laws would encourage freer sexual activity. 1 2 3 4 5
3. Life begins at birth. 1 2 3 4 5
4. It would be better to end a pregnancy than to have an unwanted child. 1 2 3 4 5
5. After 3 months no pregnancy should be ended. 1 2 3 4 5
6. If a single girl gets pregnant she should be given a legal abortion if she doesn't want the baby. 1 2 3 4 5
7. If a married woman gets pregnant by somebody besides her husband she should be given a legal abortion to save her marriage. 1 2 3 4 5
8. Abortion laws should be made more liberal. 1 2 3 4 5
9. Qualified abortionists do a necessary service even though it is now illegal. 1 2 3 4 5
10. All anti-abortion laws should be struck down. 1 2 3 4 5
11. Ending a pregnancy for economic reasons reflects bad character. 1 2 3 4 5
12. A pregnancy should be ended if it was the result of incest. 1 2 3 4 5
13. Sex before marriage is part of growing up, and one should not be punished for doing it. 1 2 3 4 5
14. If a country is really civilized, abortion wouldn't be restricted. 1 2 3 4 5

1. AGREE STRONGLY 2. AGREE 3. UNCERTAIN 4. DISAGREE 5. DISAGREE STRONGLY

15. If abortion laws were removed, there would be less tension in male-female relationships. 1 2 3 4 5
16. The Catholic Church takes too strong a stand against abortion. 1 2 3 4 5
17. A pregnancy should be ended if the mother's physical well-being is at stake. 1 2 3 4 5
18. If a person had been reared properly, abortions wouldn't be needed. 1 2 3 4 5
19. The lower classes get abortions much more than the middle or upper class people. 1 2 3 4 5
20. Abortion laws are too liberal now. 1 2 3 4 5
21. If a friend of mine got an illegal abortion, I am sure her reasons were good enough. 1 2 3 4 5
22. The only result of ending a pregnancy early would be frustration and guilt. 1 2 3 4 5
23. No human has the authority to decide on the ending of a pregnancy. 1 2 3 4 5
24. Only a crazy person would seek an illegal abortion. 1 2 3 4 5
25. If abortion laws were lightened, the hospitals would be flooded with people wanting abortions. 1 2 3 4 5
26. Lightened abortion laws show moral decay in the society. 1 2 3 4 5
27. A pregnancy should be ended if it is likely that the baby will be deformed. 1 2 3 4 5
28. A pregnancy should be ended if the mother doesn't want the baby because she can't afford it. 1 2 3 4 5

APPENDIX C

Knowledge of Contraceptive Devices and Techniques (KCDT)
(DelCampo, Note 7 ; DelCampo, Sporkowski, & DelCampo, 1976)

Revised Version (Berger, 1978)

Answer the questions below by circling the letter next to the answer you believe is correct. If you do not know the correct answer, please do not guess; instead circle choice "e".

1. After ejaculation, sperm cells can live, on the average, approximately _____ within the vagina.
 - a. Less than 1 day
 - b. 1 - 2 days
 - c. 3 - 5 days
 - d. 1 week to 10 days
 - e. Do not know
2. It takes about _____ from the time of ejaculation for sperm to get through the cervix and into the uterus.
 - a. 0 - 30 minutes
 - b. 30 - 60 minutes
 - c. 1 - 2 hours
 - d. 24 hours
 - e. Do not know
3. Which of the following contraceptive devices is fitted by a physician?
 - a. Lippes Loop
 - b. Delfen Diaphragm
 - c. Copper 7
 - d. All of the above
 - e. Do not know
4. All of the following ingredients may be found in birth control pills except:
 - a. Estrogen
 - b. Iron
 - c. Inert
 - d. Testosterone
 - e. Do not know
5. Which of the following, when used as a douche, can kill sperm cells?
 - a. Coca-cola
 - b. Vinegar
 - c. Soapy water
 - d. All of the above
 - e. Do not know
6. The temperature method of rhythm refers to a drop in basal body temperature of the female
 - a. Before menstruation
 - b. Before ovulation
 - c. After menstruation
 - d. After ovulation
 - e. Do not know
7. This method may cause irritation to the vagina.
 - a. Intrauterine device
 - b. Withdrawal
 - c. Postcoital douching
 - d. Cervical cap
 - e. Do not know
8. The IUD when properly positioned would be found in the
 - a. Cervix
 - b. Vagina
 - c. Uterus
 - d. Urethra
 - e. Do not know

9. The diaphragm covers the
 - a. Fallopian tubes
 - b. Cervix
 - c. Vagina
 - d. Ovaries
 - e. Do not know
10. If a woman using a form of contraception is experiencing pain in her lower back, cramps, and spotting, she is probably using
 - a. IUD
 - b. Diaphragm
 - c. Cervical cap
 - d. Pill
 - e. Do not know
11. Which of the following is rated the most effective method of contraception?
 - a. IUD
 - b. Pill
 - c. Tubal ligation
 - d. Abortion
 - e. Do not know
12. The diaphragm should be left in place at least _____ after sexual intercourse, to obtain maximum contraceptive effectiveness.
 - a. 1 - 3 hours
 - b. 7 - 9 hours
 - c. 12 - 15 hours
 - d. 2 - 3 days
 - e. Do not know
13. Which of the following preparations kill sperm?
 - a. Creams
 - b. Jellies
 - c. Suppositories
 - d. All of the above
 - e. Do not know
14. When using a condom, to insure maximum contraceptive effectiveness one should
 - a. Lubricate it thoroughly with petroleum jelly if it is not the prelubricated type
 - b. Leave a space between the end of the penis and the end of the condom
 - c. Hold onto the open end when withdrawing after ejaculation
 - d. Both b and c
 - e. Do not know
15. Which of the following contraceptives are sold in a drug store without a doctor's prescription?
 - a. Lippes Loop
 - b. Copper 7
 - c. Vaginal suppositories
 - d. Morning after pills
 - e. Do not know

16. The IUD should be
- Inserted before intercourse and removed several hours later
 - Checked regularly to see if it is place
 - Cleaned on a regular basis
 - Removed when a woman menstruates
 - Do not know
17. In general, a woman's safe period (when she cannot become pregnant even when she has sexual intercourse) is
- First 15 days after menstruation ceases
 - First 15 days before menstruation begins
 - First 5 days before and after menstruation
 - First 5 days before and after ovulation
 - Do not know
18. A female egg is capable of being fertilized for approximately _____ after it is released.
- 6 - 7 days
 - 4 - 6 days
 - 2 - 3 days
 - 12 hours - 1 day
 - Do not know
19. The main function of the pill is to
- Kill sperm
 - Suppress ovulation
 - Inhibit implantation of the egg
 - Regulate ovulation
 - Do not know
20. The contraceptive practice of withdrawal can be an ineffective method of birth control because
- There can be a small amount of sperm released prior to ejaculation
 - It places great demands on the self control of the sexual partners
 - It can lead to premature ejaculation
 - It can lead to postmature ejaculation
 - Do not know
21. A contraceptive as well as a protective against venereal disease is
- IUD
 - Condom
 - Vaginal douche
 - Pill
 - Do not know

APPENDIX B

Definitions and Direction of Scores
Attitude, Knowledge, and Locus of Control Measures

<u>Direction of Scores</u>	<u>Measures and Definitions</u>
High Score =	
<u>More Liberal Attitudes</u>	1) AC - Liberal or conservative attitudes toward contraception.
<u>More Liberal Attitudes</u>	2) AS - Liberal or conservative attitudes toward sexual expression.
<u>More Liberal Attitudes</u>	3) AA - Liberal or conservative attitudes toward abortion.
<u>More Liberal (Nontraditional) Attitudes</u>	4) TSDR - non-traditional or traditional sex role attitudes.
<u>More Contraceptive Knowledge</u>	5) KCDT - contraceptive knowledge.
<u>More Internal Locus of Control Orientation</u>	6) I/E - Internal or external control of personal destiny.

APPENDIX E

Personal Style Inventory (PSI) (Miller, Note 5)

File No. _____
Date _____

This questionnaire is concerned with your usual ways of feeling and doing things. It is an attempt to understand how you behave in a variety of situations. There are no right or wrong answers and no good or bad answers. There are just answers which best tell how you as an individual usually act.

Below on the left are some numbered statements. There are 90 in all. Read each statement and think how it applies to you. To the right of each statement are six possible answers.

TT means you think the statement is very true for you.

T means you think the statement is mostly true for you.

Tf means you think the statement is a little more true than false.

FF means you think the statement is very false for you.

F means you think the statement is mostly false for you.

Ft means you think the statement is a little more false than true.

After you have read each statement circle with a pen or pencil whichever answer best tells how that statement applies to you.

Work quickly, without spending too much time on any one statement. Even though it may sometimes be hard, be sure to give an answer in every case.

- | | |
|---|-----------------|
| 1. I would rather cook for other people than for myself. | TT T Tf Ft F FF |
| 2. I make big decisions without asking a lot of questions. | TT T Tf Ft F FF |
| 3. I get up at about the same time each morning. | TT T Tf Ft F FF |
| 4. Public recognition embarrasses me. | TT T Tf Ft F FF |
| 5. Even when I get completely involved in a book or a movie, I can easily stop and do something else. | TT T Tf Ft F FF |
| 6. I can't imagine myself five years older than I am now. | TT T Tf Ft F FF |
| 7. I am the kind of woman who expresses herself quite openly with a man. | TT T Tf Ft F FF |
| 8. Generally speaking, I tend to be either quite confident or very worried. | TT T Tf Ft F FF |
| 9. When I get sleepy, I sometimes do silly things. | TT T Tf Ft F FF |
| 10. I never daydream about being the lover of a famous or powerful man. | TT T Tf Ft F FF |
| 11. All it takes is something simple like a day in the country or at the beach, and I can forget all about my troubles. | TT T Tf Ft F FF |
| 12. I avoid people who are unpredictable. | TT T Tf Ft F FF |
| 13. I get quite annoyed if someone cuts ahead of me in line. | TT T Tf Ft F FF |
| 14. It is easy for me to know how much different people should be trusted. | TT T Tf Ft F FF |
| 15. I often avoid making a decision until the last possible moment. | TT T Tf Ft F FF |
| 16. I enjoy myself no matter what I am doing. | TT T Tf Ft F FF |

- | | |
|--|-----------------|
| 17. How I behave depends completely on the people I am with and the situation I am in. | TT T Tf Ft F FF |
| 18. I know pretty well what I will be doing in a few years' time. | TT T Tf Ft F FF |
| 19. In my relationships with men, I have always wanted the man to be in control. | TT T Tf Ft F FF |
| 20. I get a certain enjoyment out of mixing with a reckless crowd. | TT T Tf Ft F FF |
| 21. I have adopted a lot of my parents' values. | TT T Tf Ft F FF |
| 22. Sometimes I exaggerate my weaknesses so that others will laugh. | TT T Tf Ft F FF |
| 23. In making love I completely lose track of the world around me. | TT T Tf Ft F FF |
| 24. I like to organize what I do primarily around the plans and desires of my family and good friends. | TT T Tf Ft F FF |
| 25. Often I can't tell a man how I really feel. | TT T Tf Ft F FF |
| 26. Just in case of an accident I always fasten my seat belt in a car. | TT T Tf Ft F FF |
| 27. I would prefer a great deal of joy and despair to mild amounts of each. | TT T Tf Ft F FF |
| 28. I believe that most injuries are eventually righted. | TT T Tf Ft F FF |
| 29. I am often the last to leave a good party. | TT T Tf Ft F FF |
| 30. I have always lived according to a pretty definite plan. | TT T Tf Ft F FF |
| 31. I love it when someone really spoils me. | TT T Tf Ft F FF |
| 32. A dangerous looking man holds a certain attraction for me. | TT T Tf Ft F FF |
| 33. Frequently I get to an appointment a little early. | TT T Tf Ft F FF |
| 34. What annoys me one day may make me laugh the next. | TT T Tf Ft F FF |
| 35. If I don't enjoy doing something myself I'm not likely to do it for someone else's sake. | TT T Tf Ft F FF |
| 36. I think most people worry too much. | TT T Tf Ft F FF |
| 37. I always pay my bills on time. | TT T Tf Ft F FF |
| 38. I never make a quick decision in order to get rid of a nagging problem. | TT T Tf Ft F FF |
| 39. I am willing to try almost anything once. | TT T Tf Ft F FF |
| 40. The easiest thing is just to give in to a really aggressive person. | TT T Tf Ft F FF |
| 41. It is easy for me to concentrate on several things at once. | TT T Tf Ft F FF |
| 42. My plans are often made independent of what the people closest to me want. | TT T Tf Ft F FF |

- | | |
|---|-----------------|
| 43. I have always enjoyed meeting lots of men and getting to know them. | TT T Tf Ft F FF |
| 44. I would not enjoy riding in a very fast race car. | TT T Tf Ft F FF |
| 45. Sometimes I feel very happy or very depressed for no particular reason. | TT T Tf Ft F FF |
| 46. I take great pleasure in my work. | TT T Tf Ft F FF |
| 47. Even when I believe I am right, I can accept the other person's point of view. | TT T Tf Ft F FF |
| 48. The future seems unclear to me. | TT T Tf Ft F FF |
| 49. I often make major decisions entirely on my own. | TT T Tf Ft F FF |
| 50. I rather enjoy the suspense of waiting to hear back about things like a school exam or a doctor's report. | TT T Tf Ft F FF |
| 51. I probably wait too long before getting mad at people. | TT T Tf Ft F FF |
| 52. I never think of myself as sexy. | TT T Tf Ft F FF |
| 53. I always know just what the date is. | TT T Tf Ft F FF |
| 54. I know that if I started to worry about some things, I would never get them off my mind. | TT T Tf Ft F FF |
| 55. I don't mind interruptions, even when I am completely relaxed. | TT T Tf Ft F FF |
| 56. It has never bothered me to tell a man when I didn't like what he was doing. | TT T Tf Ft F FF |
| 57. I have gone through periods where my basic values changed completely. | TT T Tf Ft F FF |
| 58. I really appreciate having people around me who can sympathize with my problems. | TT T Tf Ft F FF |
| 59. I have made general plans for most of my future life. | TT T Tf Ft F FF |
| 60. I really lose myself in a good story. | TT T Tf Ft F FF |
| 61. I have never hated anyone. | TT T Tf Ft F FF |
| 62. I prefer to enjoy myself thoroughly with someone, even though I will be hurt and disappointed later. | TT T Tf Ft F FF |
| 63. I rarely need to be reminded of things. | TT T Tf Ft F FF |
| 64. Most people are not as sensitive to my feelings as I am to theirs. | TT T Tf Ft F FF |
| 65. I don't worry much about making a man mad at me. | TT T Tf Ft F FF |
| 66. I always seem to really enjoy my vacations. | TT T Tf Ft F FF |
| 67. When I am unsure what to do, I will often just wait and see what works out. | TT T Tf Ft F FF |

68. I am not very moody.	TT T Tf Ft F FF
69. Being raped by certain men could actually be quite exciting.	TT T Tf Ft F FF
70. I don't count on being helped by good fortune.	TT T Tf Ft F FF
71. Even after I have started to feel better, I have no trouble remembering to take medicine.	TT T Tf Ft F FF
72. I get a certain enjoyment out of doing some things that are wrong when I know I might get caught.	TT T Tf Ft F FF
73. As a woman, I have always put up with a certain amount of drudgery and unpleasantness.	TT T Tf Ft F FF
74. I love to throw myself completely into a conversation.	TT T Tf Ft F FF
75. When I think about myself a few years from now everything seems fuzzy.	TT T Tf Ft F FF
76. Sometimes I just don't take things seriously until I have been hurt a little.	TT T Tf Ft F FF
77. I follow a regular routine when I get up in the morning.	TT T Tf Ft F FF
78. Sometimes I get so involved in something that I almost forget where I am.	TT T Tf Ft F FF
79. I like the feeling of being protected and taken care of by a man.	TT T Tf Ft F FF
80. When I am driving a car, I don't think ahead about situations where I might get into a wreck.	TT T Tf Ft F FF
81. Once I let myself get angry, I tend to lose my temper.	TT T Tf Ft F FF
82. Even when I am really enjoying myself, I keep my responsibilities in the back of my mind.	TT T Tf Ft F FF
83. I would rather be hurt myself than see someone close to me get hurt.	TT T Tf Ft F FF
84. I feel as though I have a definite influence on the people around me.	TT T Tf Ft F FF
85. Even when I am sexually very excited, I have no difficulty controlling myself.	TT T Tf Ft F FF
86. I am not easily embarrassed when others compliment me.	TT T Tf Ft F FF
87. It is easy for me to stand up to a man.	TT T Tf Ft F FF
88. I have always had a hard time making plans for the future.	TT T Tf Ft F FF
89. For me there is no thrill in danger.	TT T Tf Ft F FF
90. Sometimes I really get carried away with my emotions.	TT T Tf Ft F FF

APPENDIX F

Personal Style Inventory (Miller, Note 5)
 Subscale Question Numbers and Direction of Scores

Subscales

HI	BS	GR	PFO	SS	Vig
-1 ^a	+3	+5	-6	-4	-2
+7 ^b	-9	-11	+12	+10	-8
-19	-15	-23	+18	+16	-20
-25	-27	-29	+24	-22	+26
-31	+33	-36	+30	+28	-32
+43	-34	+41	-42	-40	+38
+49	+37	+47	-48	+46	-39
+56	-45	+55	+59	-51	+44
+65	+53	-60	-67	-58	-50
-79	-57	-78	+70	-64	-54
+84	+63	+82	-75	+66	-62
+87	+68	+85	-88	-73	-72
	+71			-83	-76
	+77			+86	+89
	-81				
	-90				

a. "+" = TT = 6 points; FF = 1 point

b. "-" = FF = 6 points; TT = 1 point

APPENDIX G

Definitions and Direction of Scores
Personal Style Inventory (Miller, Note 5)

The Personal Style Inventory measures psychological trait dimensions relevant to effective contraceptive use and birth planning behavior.

Direction of Scores

Subscales and Definitions

High Score =

More Heterosexual Initiative

1) HI - Measures the ability to act independently; express one's self openly; maintain influence and control; and relate as an equal in relationships with others, (particularly males); without worrying about loss of approval.

More Behavioral Stability

2) BS - Assesses the ability to regulate and stabilize emotions, mood, and values over time and under varied circumstances such that behavior is consistent and moderate.

More Graduated Responses

3) GR - Evaluates the ability to respond in degrees appropriate to the circumstances; remain mindful of responsibilities; concentrate on several issues simultaneously; and resist becoming involved (to extremes) in singular activities, (particularly in enjoyable or pleasurable situations).

More Planning and Future Orientation

4) PFO - Assesses the tendency to make clear life plans; take significant others into account when doing so; and be future oriented.

More of a non-suffering Personal Set

5) SS - Measures the tendency to derive pleasure from one's work and activities; acknowledge one's strengths and worth; and be self-confident and satisfied (rather than self-sacrificing, sorry for one's self, and passively imposed on and embarrassed).

More Vigilant Behavior

6) Vig - Evaluates the tendency to act cautiously; resist danger, risk taking, and impulsive actions; take things seriously; and make informed thoughtful decisions.

APPENDIX H

Contraceptive Attitude Questionnaire (CAQ) (Miller, Note 5)

Selected Subscales

File No. _____
 Date _____

Below is a list of statements which reflect attitudes towards sexual and contraceptive behavior. Please read over each one and indicate whether you agree or disagree by circling the answers on the right.

Circle ++ if you Agree Completely, and -- if you Disagree Completely.

Circle + if you only Agree Somewhat, and - if you only Disagree Somewhat.

Please answer each item as it relates to you and your contraceptive knowledge and experience

	Agree Completely	Agree Somewhat	Disagree Somewhat	Disagree Completely
1. I would avoid using a contraceptive method which had a lot of side effects.	++	+	-	--
2. It is sometimes important to show your love by taking a chance on getting pregnant.	++	+	-	--
3. Douching (washing out the vagina with water) is a good method of contraception when you haven't taken precautions before intercourse.	++	+	-	--
4. It is difficult to talk to your boyfriend or husband about what kind of contraception to use.	++	+	-	--
5. It can be exciting to take a chance on getting pregnant.	++	+	-	--
6. I would prefer a contraceptive method which was not complicated to use.	++	+	-	--
7. I would avoid using a contraceptive method which involved touching my genitals (sexual parts) each time I wanted to use it.	++	+	-	--
8. At times I have a half-conscious wish to get pregnant or have a baby although I know it is not practical.	++	+	-	--
9. If you have decided to stop having intercourse it is still a good idea to keep contraception available.	++	+	-	--
10. No contraceptive method really works well enough.	++	+	-	--
11. Withdrawal is an acceptable method of contraception when nothing else is available.	++	+	-	--
12. The whole idea of contraception is unpleasant to me.	++	+	-	--

	<u>Agree</u> <u>Completely</u>	<u>Agree</u> <u>Somewhat</u>	<u>Disagree</u> <u>Somewhat</u>	<u>Disagree</u> <u>Completely</u>
13. It is very embarrassing to talk with my friends about contraception.	++	+	-	--
14. Rhythm is an acceptable method of contraception when nothing else is available.	++	+	-	--
15. I would avoid using contraception which interfered in any way with sensation during sexual relations.	++	+	-	--
16. Sometimes having intercourse with a particular person is worth the chance of pregnancy.	++	+	-	--
17. There are times when I just don't care whether or not I get pregnant.	++	+	-	--
18. I would prefer using a contraceptive method which could easily be concealed and kept private.	++	+	-	--
19. With some types of contraception there is a real chance of getting carried away before you can use them.	++	+	-	--
20. I would not want to have my genitals (sexual parts) examined by a doctor just to get contraception.	++	+	-	--
21. I would avoid using a contraceptive method which exposed me to the risk of serious illness.	++	+	-	--
22. I dislike even thinking about contraception.	++	+	-	--
23. The problem with some contraceptive methods is that you have to plan for the possibility of intercourse ahead of time.	++	+	-	--
24. There are times when I might have a hard time avoiding sexual involvement even though there was not any contraception available.	++	+	-	--
25. I would avoid using contraception which was bothersome and messy.	++	+	-	--
26. It is difficult and upsetting to go talk with a doctor about contraception.	++	+	-	--
27. Sometimes, when contraception is not available, you just have to take a chance and count on good luck.	++	+	-	--

	Agree Completely	Agree Somewhat	Disagree Somewhat	Disagree Completely
28. If you really love someone, the chances of pregnancy aren't so important.	++	+	-	--
29. I would avoid using a contraceptive method which interfered with the natural functions of my body.	++	+	-	--
30. Getting hold of reliable contraception is a lot of effort and bother.	++	+	-	--
31. Contraceptive methods which have to be used each time you have intercourse interfere a lot with a person's spontaneity and pleasure.	++	+	-	--
32. I am the sort of woman who might get pregnant just to hurt or punish myself.	++	+	-	--
33. I would prefer a contraceptive method which did not require stopping in order to apply it once I was sexually aroused.	++	+	-	--
34. I would avoid using a contraceptive method which men tended to dislike.	++	+	-	--

APPENDIX I

Contraceptive Attitude Questionnaire (Miller, Note 5)
 Subscale Question Numbers and Direction of Scores

Subscales					
<u>CT</u>	<u>CS</u>	<u>CDA</u>	<u>ICA</u>	<u>SEA</u>	<u>PW</u>
2 ^a	4	6	3	1	8
5	12	15	11	21	17
16	13	19	14	29	32
17	20	23	27		
27	22	25			
28	26	31			
	30	33			
		34			

a. Scoring for all items for all subscales;
 ++ (Agree Completely) = 1 point
 -- (Disagree Completely) = 4 points

APPENDIX J

Definitions and Direction of Scores
Contraceptive Attitude Questionnaire (Miller, Note 5)
The Contraceptive Attitude Questionnaire assesses contraceptive preferences and tolerances, and pregnancy related tendencies.

Direction of Scores

Subscales and Definitions

High Score=

- | | |
|--|--|
| <u>Less</u> Chance Taking | 1) CT - Measures chance taking in relation to pregnancy. |
| <u>Less</u> Contraceptive Shame | 2) CS - Assesses the degree of difficulty encountered in thinking or talking (with partners, friends or physicians) about contraception; in procuring contraceptives from medical personnel. |
| <u>Less</u> Coitus Dependent Aversion | 3) CDA - Evaluates aversion to the aesthetic and practical drawbacks of coitus-dependent contraceptive method use. |
| <u>Less</u> Ineffective Contraceptive Acceptance | 4) ICA - Measures acceptance of ineffective contraceptive methods when superior methods are not available or plans for their use have not been made. |
| <u>Less</u> Somatic Effects Aversion | 5) SEA - Assesses avoidance of contraceptive methods that affect natural body functions. |
| <u>Less</u> Pregnancy Wish | 6) PW - Evaluates the desire to become pregnant and have a child even when it is not practical to do so. |

APPENDIX K

Results of Bartlett - Box F Test of
Homogeneity of Variance
for the Dependent Variables

<u>Dependent Variable</u>	<u>df</u>	<u>F</u>	<u>P</u>
AC	2,14696	2.190	ns
AS	2,14696	2.448	ns
AA	2,14696	0.616	ns
TSDR	2,14696	1.537	ns
KCDT	2,14696	1.371	ns
IE	2,14696	2.686	ns
HI	2,14696	1.824	ns
BS	2,14696	0.569	ns
GR	2,14696	0.594	ns
PFO	2,14696	0.004	ns
SS	2,14696	0.131	ns
Vig	2,14696	5.556	<u>p</u> <.005
CT	2,14696	1.045	ns
CS	2,14696	4.124	<u>p</u> <.05
GDA	2,14696	0.754	ns
ICA	2,14696	0.100	ns
SEA	2,14696	3.025	<u>p</u> <.05
PW	2,14696	1.162	ns

APPENDIX L

Within Cells Correlation Coefficients
for the Attitude Measures, KCDT, IE, PSI, and CAQ

Dependent Variables	AC	AS	AA	TSDR	KCDT	IE	HI	BS	GR	PFO	SS	V1g
AC												
AS	.61*											
AA	.52*	.32										
TSDR	.46*	.54*	.16									
KCDT	.46*	.41*	.24	.35*								
IE	.13	.10	.01	.04	.10							
HI	.46*	.41*	.28	.36*	.33	.11						
BS	-.13	-.17	-.13	-.07	.03	.18	.17					
GR	-.11	-.26	.00	-.15	-.21	-.08	-.03	.28				
PFO	-.18	-.26	-.15	-.15	.00	.21	.09	.40*	.12			
SS	.12	.15	.03	.06	.13	.40*	.44*	.29	-.12	.23		
V1g	.01	-.15	-.07	-.05	.05	.25	.18	.52*	.28	.23	.37*	
CT	.35*	.19	.15	.17	.01	.14	.24	.17	.13	.08	.26	.41*
CS	.48*	.36*	.21	.28	.30	.15	.34*	.13	-.11	-.12	.21	.15
CDA	-.13	-.19	-.06	-.06	-.09	-.05	.06	.12	.21	.25	.15	.38*
IGA	.29	.17	.31	.18	.21	.14	.27	.08	.03	.12	.29	.30
SEA	.08	.12	-.09	.12	-.05	-.03	.04	-.13	-.05	.04	.07	-.06
PW	.08	.06	-.01	.20	-.07	.04	.32	.34*	.15	.25	.35*	.43*

* $\alpha = .10/153 = .00065$; Type 1 error rate per test. $r = .335$; Critical value of the sample correlation coefficient.

Multistage Bonferroni procedure (Larzelere & Mulaik, 1977)

APPENDIX L CONTINUED
 Within Cells Correlation Coefficients
 for the Attitude Measures, KCDT, IE, PSI, and CAQ

<u>Dependent Variables</u>	CT	CS	CDA	TCA	SEA	PW
AC						
AS						
TSDR						
KCDT						
IE						
HI						
BS						
GR						
PFO						
SS						
VIG						
CT	.26					
CS	.25	.11				
CDA	.47*	.17	.18			
ICA	.02	-.11	.08	-.10		
SEA	.60*	.15	.21	.20	.12	
PW						

APPENDIX M

Multistage Bonferroni Procedure
(Larzelere and Mulaik, 1977)

I. Familywise Type 1 Error Rate:

Stage I

$$\alpha_{FW} = .10$$

Stage II

$$\alpha_{FW} = .10$$

II. Type 1 Error Rate Per Test:

$$\alpha_T = \alpha_{FW} / m$$

m = number of tests in the family of tests

Stage I

$$.10/153 = .000654$$

Stage II

$$.10/127 = .00079$$

III. Critical Value of the t Distribution (Two Tailed Test of Significance):

Stage I

$$t_{\alpha T/2} = 3.522; \text{ where } Z_{\alpha T/2} = 3.41$$

Stage II

$$t_{\alpha T/2} = 3.468; \text{ where } Z_{\alpha T/2} = 3.36$$

IV. Critical Value of the Sample Correlation Coefficient:

Stage I

$$r_{\alpha T/2} = .335$$

Stage II

$$r_{\alpha T/2} = .331$$

V. Significance of the Correlation Coefficients:

Stage I

26 of 153 sample correlation coefficients were significant at the $\alpha_{FW} = .10$ level.

Stage II

none of the sample correlation coefficients corresponding to the previously nonsignificant correlations were significant at this stage.

APPENDIX N
MANOVA
FOR AG, AS, AA, TSDR, KDDI, HI, CS

Multivariate Tests of Significance

Test Statistic	Value	df hyp	df error	approx F	p
Pillai's V	.16	14	184	1.18	ns
Wilks' W	.84	14	182	1.18	ns
Hotelling's T	.18	14	180	1.18	ns

Eigenvalues, Canonical Correlations and Dimension Reduction Analysis

Function	Eigenvalue	Percent of Variance	Canonical Correlation	After Removal of Function	Wilks Lambda	F	df hyp	df error	p
1	.14	75.45	.35	0	.84	1.18	14	182.0	ns
2	.05	24.55	.21	1	.96	.69	6	91.5	ns

APPENDIX 0
MANOVA
FOR IE, BS, GR, PFO, SS, VIG, CT, CDA, ICA, PM

Multivariate Tests of Significance

Test Statistic	Value	df hyp	df error	approx F	p
Pillai's V	.36	20	178	1.96	<.05
Wilks' W	.66	20	176	2.02	<.01
Hotelling's T	.48	20	174	2.07	<.01

Eigenvalues, Canonical Correlations and Dimension Reduction Analysis

Function	Eigenvalue	Percent of Variance	Canonical Correlation	After Removal of Function	Wilks Lambda	F	df hyp	df error	p
1	.38	80.41	.53	0	.66	2.02	20	176.0	<.01
2	.09	19.59	.29	1	.92	.92	9	88.5	ns

APPENDIX P

MANOVA

Roy-Bargmann's Stepdown F Tests

Dependent Variable	Between MS	Within MS	Between df	Within df	F	P
IE	1.51	15.20	2	97	.10	ns
SEA	.45	2.75	2	96	.16	ns
HI	26.77	50.07	2	95	.54	ns
PW	1.86	2.75	2	94	.68	ns
CDA	16.81	16.17	2	93	1.04	ns
GR	25.03	33.97	2	92	.74	ns
AA	151.77	128.12	2	91	1.19	ns
PFO	106.82	62.10	2	90	1.72	ns
CS	17.47	7.68	2	89	2.28	ns
AS	45.24	24.85	2	88	1.82	ns
TSDR	9.95	6.84	2	87	1.45	ns
BS	195.67	65.69	2	86	2.98	<.10
Vig	104.05	52.18	2	85	1.99	ns
SS	106.86	29.87	2	84	3.58	<.05
KCDT	13.49	12.59	2	83	1.07	ns
ICA	4.24	3.99	2	82	1.06	ns
AC	36.85	58.93	2	81	.63	ns
CT	17.72	4.18	2	80	4.24	<.05

APPENDIX Q

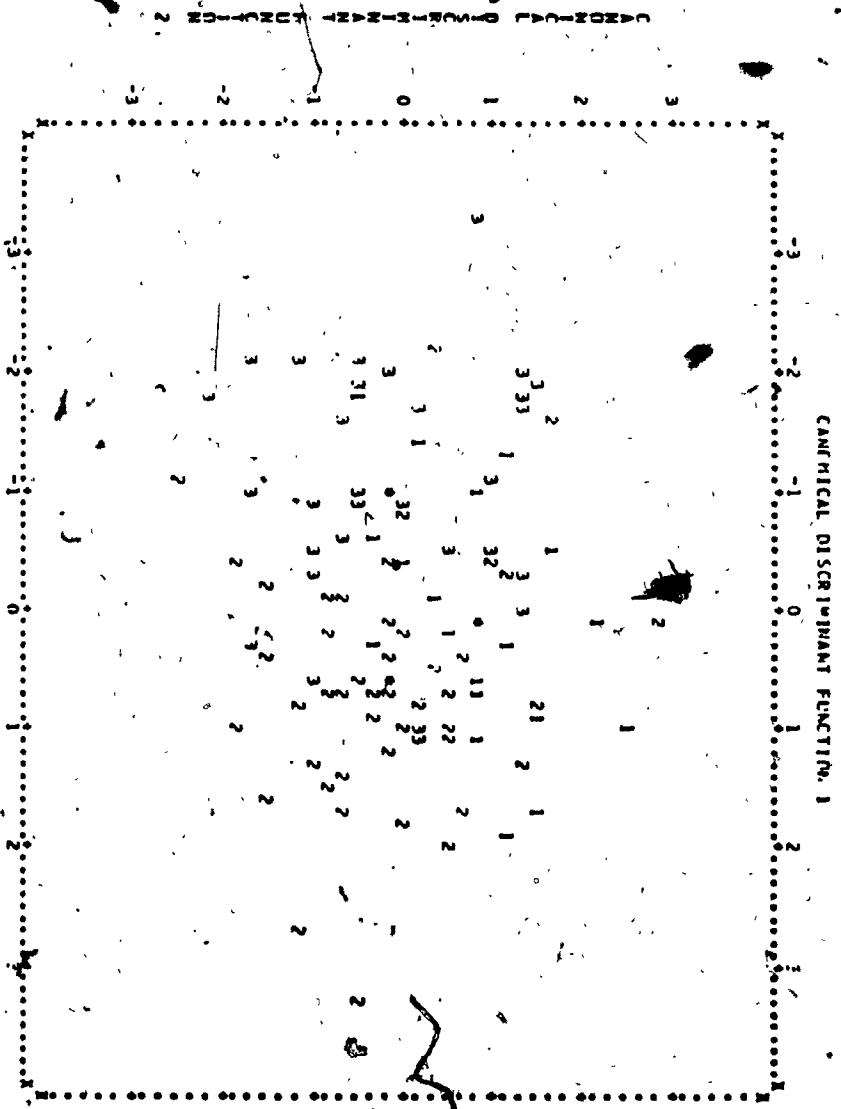


Figure 1. Plot of the discriminant scores for all subjects (N=100), with group centroids (*) indicated, for the stepwise discriminant analysis.

