ABORTION PAIN: PSYCHOSOCIAL AND MEDICAL PREDICTORS

by

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Abstract

Early abortion by suction-curettage under local anesthesia is a safe procedure. However, most women experience some degree of pain, although wide variations are frequently observed. The present study examined the characteristics of pain during and after first-trimester abortion and attempted to explain the sources of inter-individual variability in pain and distress reports. Pain was assessed in 109 patients with the McGill Questionnaire, visual analogue and verbal rating scales. The results suggested that abortion pain scores ranked among moderately severe types of pain. Correlational/regression analyses revealed significant correlates and predictors of abortion pain. These included age, education, depression, ambivalence, trait and state anxiety, moral and interpersonal concerns as well as medical features such as retroversion of the uterus, dysmenorrhea and gestational age. The determinants of emotional responses before and after pregnancy termination were also explored. Moreover, ambivalence, preoccupation with abortion, fear, expectancy of pain and lack of social support significantly contributed to greater anxiety and depression before abortion. Although average scores demonstrated significant decreases in levels of anxiety and depression two weeks after abortion, several features were found to be related to prolonged negative mood, namely trait anxiety, negatively perceived staff attitudes, ambivalence, young age and the partner's absence. Possible interpretations and implications of these findings as well as suggestions for future research are discussed.

Ph.D. Psychologie

La Douleur de l'Avortement: Une Etude des Prédicteurs Psychosociaux et Médicaux

L'interruption volontaire de grossesse par suction-curettage sous anesthésie locale est une intervention qui pose peu de danger. Cependant, la plupart des femmes éprouvent de la douleur, quoiqu'à des degrés très divers. La présente étude a examiné les caractéristiques de la douleur au cours et suite à l'avortement, et a tenté d'expliquer les sources de la variabilité inter-individuelle. Cent-neuf patientes ont évalué leur douleur à partir du Questionnaire de McGill sur la Douleur et d'échelles d'intensité de types analogique et verbal. Les résultats montrèrent que la douleur durant l'avortement est relativement élevée. Les analyses multivariées de corrélation et de régression révélèrent plusieurs indices significatifs de prédiction des mesures de douleur. Ceux-çi comprenaient l'âge, l'éducation, la dépression, l'ambivalence, l'anxiété liée à l'état et à la personnalité, les problèmes moraux et interpersonnels ainsi que certains facteurs médicauxs tels la rétroversion de l'utérus, la dysménorrhée et la durée de la gestation. Les indices associés aux réponses émotives avant et après l'avortement furent également explorés. Les résultats indiquèrent que l'ambivalence, la rumination, la peur, l'anticipation de la douleur et le manque de support social contribuaient aux cotes élevées d'anxiété et de dépression avant l'intervention. Bien que les moyennes démontrèrent une diminution sensible des niveaux d'anxiété et de dépression deux semaines après l'avortement, plusieurs facteurs se révélèrent reliés aux troubles prolongés de l'humeur. Ceux-çi incluaient: l'anxiété liée à la personnalité, le jeune âge, la perception négative des attitudes des intervenants, l'ambivalence face à la décision d'interrompre la

grossesse et l'absence du partenaire. Les interprétations et les implications de ces résultats et les suggestions pour les recherches futures sont discutées.

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INTRODUCTION

The complexity and the diversity of pain phenomena, and the inadequacies of traditional sensory formulations of pain perception led Melzack and Wall (1965) to propose a model of pain mechanisms which integrates knowledge at many levels of scientific inquiry. The Gate-Control Theory (Melzack & Wall, 1965; Melzack & Casey, 1968; Melzack & Wall, 1982) contends that pain perception is mediated by interacting processes at multiple sites of the central nervous system. This concept of interaction between diverse modulating influences has provided the framework for integration of the sensory, motivational-affective and cognitive dimensions of pain, as well as a paradigm for the multidisciplinary pain clinics which assess and treat pain problems from a broad neurological, psychological and social perspective.

Psychological factors which were ignored or relegated to a secondary role by the sensory or "specificity" theory of pain are now seen as a major influence in clinical pain phenomena (Merskey & Spear, 1967; Sternbach, 1974), and older dichotomous notions of organic versus psychogenic pain (Walters, 1961) are being replaced by models which emphasize multiple continuous dimensions (Chapman, 1977, 1978b; Duncan, Gregg & Ghia, 1978; Reading, 1982a). The definition of pain adopted by the International Association of the Study of Pain which describes pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" reflects the emphasis on experiential qualities and psychological processes. Questions about the personal meaning of pain to the sufferer, decision strategies for coping with stress and discomfort, and personal and social context factors have become recognized as as important modulators of pain perception, and have resulted in new strategies for

pain assessment and management (Barber & Adrian, 1982; Craig, 1984a, 1984b; Turk, Meichenbaum & Genest, 1983).

Overview of the Present Study

Over 1.6 million pregnancies are voluntarily terminated each year in America (Tietze, 1983). In the past 25 years, several countries in Europe, Asia and the United-States have amended their laws, based on public health measures, to safeguard women from harmful, illegally induced abortions. Early pregnancy terminations have become common medical procedures, performed in out-patient gynecological services or non-hospital clinics. Dilatation and suction-curettage is the principal method of abortion, and is most frequently carried-out under local anesthesia in America (Grimes, 1985; Grimes & Schulz, 1985). Despite the prevalence of pregnancies terminated by induced abortions (one abortion is performed for every four live births), very little empirical research has investigated the nature of pain during and after this intervention, its management, or the factors that contribute to its variability.

Abortion provides an interesting paradigm to study acute clinical-iatrogenic pain. It shares some of the advantages of the laboratory in its brief duration (the complete procedure takes about fifteen minutes), situational dependency, identifiable external source, and stimulus control (operative techniques being essentially similar from one patient to another); and, at the same time, it is similar to clinical pain in that it is accompanied by personal meaning and involvement, is often emotionally charged, involves the subjective risk of tissue damage and can induce suffering. However, abortion pain is difficult to study, due

to the intimate and rapidly changing nature of the experience, and the personal and sociological significance of the event.

Furthermore, abortion is a unique medical procedure, often involving psychological perspectives more complex than those prevailing in the traditional physician-patient relationship. There are numerous legal, political, theological and moral issues which can impinge on the attitudes of the service-provider and the women experiencing the termination of an unwanted pregnancy (Adler, 1982). In the period following World War II through the 1960's, there was the strongly held belief among many physicians that abortion was a traumatic experience. This assertion was often based on single case histories and on impressionistic studies which disregarded the vast number of women who did not come to psychotherapeutic attention after abortion (see David, 1972, 1982, 1985; Osofsky & Osofsky, 1973). Legislative and judicial changes in the 1970's have been associated with a growth of better designed studies on the psychological sequelae of abortion, many of which indicated that the predominant response immediately after early legal abortion is emotional relief. Although negative effects rarely occur, abortion represents a crisis intervention, an imperfect solution at best, to the conflicts and stresses that arise from an unintended pregnancy. In this perspective, a wide range of interesting psychological and social issues can be explored to help identify the factors associated with emotional responses before and after abortion.

The limited nature of the results from previous research on abortion pain stems partly from problems in pain measurement, and partly from the scant attention devoted to the psychological, social and medical factors which may influence the experience of pain. The scarcity of the literature on abortion pain, however, stands in sharp contrast to the great number of studies on women's

characteristics, attitudes, feelings and psychosocial factors that determine their post-abortion emotional responses and satisfaction with the decision.

Although nearly one in every forty women terminate an unwanted pregnancy each year (U.S. statistics, Henshaw & O'Reilly, 1983), very little is known about pain in abortion, its management and the characteristics of women most at risk to experience high levels of pain during or after the procedure. The primary objective of the present study was to systematically document the intensity and characteristics of pain in first-trimester abortion by suction-curettage with paracervical block. Furthermore, the contributions of the patients' demographic, psychological, social and medical features were explored in order to understand some possible sources of inter-individual variability in abortion pain. Finally, another major consideration in this study was to investigate the psychological reactions of women before and after abortion. Although a considerable body of research has been devoted to the psychological consequences of abortion, the present study provided a valuable opportunity to reexamine the background and psychosocial factors likely to predispose to adverse outcomes at short-term follow-up. The following sections review the literature on the social, medical and psychological aspects of abortion, and on issues relevant to the study of acute pain.

Abortion: Medical Progress and Psychosocial Implications

Social Context

An unwanted pregnancy which terminates in abortion is a life event experienced by a large number of women. It is estimated that fifteen percent of American women of childbearing age have had a legal abortion (Henshaw & O'Reilly, 1983; Tietze, 1983). Abortion is probably one of the most prevalent methods of

effective fertility regulation (Shain, 1982). Throughout recorded history women have resorted to induced abortions to terminate unwanted pregnancies, regardless of religious or legal sanctions and often at considerable risk (David, 1981). Although spontaneous abortions occur frequently and often distress the women concerned, they have not generated the controversy or emotion associated with the topic of induced abortion. Induced abortion is a voluntary act that can be interpreted either as a basic right of all women or a threat to fundamental social institutions like marriage and family. Societies differ in the extent to which abortion is legally, religiously or socially accepted and any attempt to understand the psycho-socio-medical aspects of abortion must therefore attempt to understand the wide context in which abortion occurs. Among the countries of the world, the legal status of abortion ranges from complete prohibition (as in Muslim countries of Asia and in two-thirds of the countries in Latin America) to elective abortion upon request of the pregnant woman, within certain defined limits (as in the United States, Denmark or Sweden, which do not allow termination after 24 weeks of gestation, defined as the age of viabilitity of the fetus, except in cases of severe malformation).

Abortion used to be a personal drama, lived silently and secretly, but this has changed in the last decade in many countries: abortion has become a popular issue, receiving coverage from the mass media and debated openly. The battle to liberalize abortion laws has been based on considerations of public health (to combat illegal abortion with its associated morbidity and mortality), social justice (to give poor women access to abortion previously available only to the well-to-do) and women's rights (to secure a postulated right of all women to control their own bodies). However, it has met with considerable resistance from governments as well

as religious and professional groups that have objected to abortion on demographic, moral and health grounds (Callahan & Callahan, 1984; David, 1978; Luker, 1984).

In 1973, the United States Supreme Court legalized abortion, ruling that the decision to terminate a first- or second-trimester pregnancy (up to 20 or 24 weeks from last menses) is left solely to the woman and her physician. This has, however, set the stage for acrimonious national debate and political confrontation which show no sign of abating (Rosoff, 1985). In Canada, a restrictive law was modestly liberalized in 1969 (as was the British Abortion Act of 1967), and permits termination of pregnancy only in hospitals and only if a committee of not fewer than three physicians certifies that the continuation of the pregnancy "would or would be likely to" endanger the life or health of the pregnant woman. By 1980, however, only 39% of all public hospitals in Canada had established abortion committees and 19% of these hospitals reported that no abortion had been performed during that year (Tietze, 1983). As a result of the limited access to abortion services in Canada, the average interval between the woman's request and the performance of the procedure was about eight weeks (Canada, 1976, in Tietze, 1983). Such delays, however, expose women to higher risks of complications, since it is estimated that morbidity rises by 20% with each additional week of pregnancy (Cates, Schulz, Grimes & Tyler, 1977; Frank, 1985; Frank et al., 1985; Grimes & Cates, 1978, 1979; Hogue, Cates & Tietze, 1982; Lewit, 1982; Tietze, 1983). In apparent disregard of the national legislation, the provincial government of Quebec has allowed private clinics to operate (e.g., Morgentaler, 1973), and has funded over 5,500 abortions each year in non-hospital clinics in Montreal and elsewhere in order to secure safe, accessible and early terminations of pregnancies.

Medical Developments

World-wide experience has confirmed that first-trimester abortion by vacuum-curettage is, in skilled hands, a minor surgical operation associated with a low incidence of morbidity, such as hemorrhage, infection, and uterine or cervical damage. Extensive evidence suggests that long-term sequelae on fertility and subsequent pregnancies are also rare.

Grimes (1985) reports that 90% of all abortions in 1981 occurred within the first-trimester of pregnancy, i.e. at 12 weeks or earlier, and over half at 8 weeks or earlier, and were performed by suction-curettage (also termed vacuum aspiration curettage, suction D & C, dilatation and extraction, or D & E). Most commonly, these abortions are carried out under local anesthesia (Castedot, 1986; Grimes & Schulz, 1985; Lewit, 1982). Accumulating experience has made it clear that lower morbidity and mortality rates are obtained with instrumental evacuation procedures under local anesthesia compared to general anesthesia (Andolsek et al., 1977; Cates et al., 1982; Grimes, Schulz & Cates, 1979; Peterson, Grimes, Cates & Rubin, 1981), or labour-inducing methods of amniotic saline or prostaglandin instillation carried out after 16 weeks of gestation (Cates & Grimes, 1981; Cates & Tietze, 1978; Grimes & Cates, 1979; Frank et al., 1985).

Although uterine evacuation can be achieved safely and simply by suction aspiration under local anesthesia, recent research has focussed on the development of chemical abortifacients that can be used in early pregnancy, or as a routine method of contraception (Baird & Cameron, 1985). So far, the only methods which appear promising are those which act directly on the smooth muscles of the uterus, such as prostaglandins, or those which inhibit the synthesis of progesterone or antagonize its action on the uterus, such as "antigestogens" or "antiprogestin steroids". Baulieu (1985) demonstrated that antiprogestin agents (e.g., RU 486) have

an action similar to prostaglandin compounds, since they also act on the uterine and cervical mucosa to increase myometrial contractility and allow the detachment of the trophoblast. While antiprogestational agents or prostaglandin suppositories may be appealing non-surgical methods of "menstrual regulation", their important side-effects (abdominal cramps, vomiting, nausea, blood loss) and their limited efficacy (with rates of 30-60% incomplete abortion) still preclude the general use of such agents (Baird & Cameron, 1985; Bygdeman, 1984; Bygdeman, Christensen, Green, Zheng & Lundstrom, 1983; Foster, Smith, McGruder, Richard & McIntyre, 1985; Kovacs et al.,1984; Rosen, Von Knorring, Bygdeman & Christensen, 1984).

Pain in Abortion: Clinical and Research Picture

It is estimated that nearly 90% of abortions in the United-States and Canada are performed by vacuum-curettage under local anesthesia (Grimes, 1985; Grimes & Schulz, 1985; Tietze, 1983). Although pain control may be achieved by general anesthesia, considerable evidence suggests that this method is associated with higher complication rates than local anesthesia (see for example, Cates et al., 1982; Grimes et al., 1979; Grimes & Schulz, 1985; Peterson et al., 1981). Most textbooks recommend the use of local anesthetics alone (Burnhill & Levin, 1976; Hern, 1984; Hodgson, 1981; Sciarra, 1982), although a few authors recommend additional sedation or narcotic analgesia to achieve better control of pain (e.g., Castedot, 1986; Corli et al., 1984). However, the effectiveness of adjunctive analgesic pre-medication remains still to be investigated. Moreover, decisions on the choice of pain-relief method may well be contingent on the functional value attributed to pain: drugs which interfere with the warning signal provided by pain, which could alert the physician of serious complications (such as cervical injury, perforation, uterine hypotonia or hemorrhage) may not be considered satisfactory

methods of pain management in abortion (Burnhill & Armstead, 1978; Hern, 1984). Finally, medical professionals may be reluctant to administer narcotic drugs in outpatient settings, due to fear of respiratory depression or of prolonged mental clouding (Bonica, 1979; Stimmel, 1985).

Clinical observations of the pain experienced during abortion with paracervical blocks has been described as non-existant (Connor & Bepko, 1964; Strausz & Schulman, 1971), mild (Hern, 1984; Hodgson, 1981; Penfield, 1971), discomforting (Frymire & French, 1974) or moderate, though sometimes severe (Smith, Stubblefield, Chirchirillo & McCarthy, 1979). These words represent considerable variation in women's perception of abortion pain, and this variation cannot be related simply to the sensory stimulation that results from the injection of the local anesthetic on the cervical ring, the dilatation of the cervix, and the aspiration and curettage. However, very few investigators have examined the sources of this variability, which could be due to patient medical characteristics such as parity, previous abortions or pelvic dysfunctions, to different medical procedures such as the degree and type of cervical dilatation, or to psychological variables. Only two studies report that medical features influence pain in early abortion (Smith et al., 1979; Heisterberg et al., 1982).

Only four studies attempted to quantify the subjective intensity of pain in suction-curettage abortion (Corli et al., 1984; Smith, et al.,1979; Suprapto and Reed, 1984; Stringer, Anderson, Beard, Fairweather & Steele, 1975), while two others measured pain indirectly, using the operators' or the attending nurses' estimates of patients' discomfort (Frymire & French, 1974; Strausz & Schulman, 1971). Although a relatively large number of studies from Europe have examined the comparative effectiveness of various short-acting narcotics or barbiturates for

general anesthesia, the most frequently used outcome measure in such investigations has been the incidence of pain reactions under anesthesia and in post-abortion recovery, of side-effects such as nausea, vomiting (e.g., Ogg, Jennings & Morrison, 1983) or the number of days with post-abortion pain (Heisterberg et al., 1982), rather than subjective accounts of pain intensity.

Most studies on pain in first-trimester abortion have used only single intensity scales. One of the earliest studies on the effectiveness of paracervical blocks, in which patients rated their level of pain on a verbal intensity scale, demonstrated that significantly less pain is experienced by patients who received local anesthesia than those who did not receive a block (Stringer et al., 1975). Nevertheless, 43% of the women reported moderate to severe pain despite local anesthesia. More positive conclusions were reported in previous studies, which used ratings of discomfort or of the quality of anesthesia recorded by the physicians or nurses (Frymire & French, 1974; Strausz & Schulman, 1971); using measures of unknown reliability and validity, it was estimated that less than 25% of women experienced moderate to severe discomfort during the intervention.

In one of the most extensive studies to date on pain in first-trimester abortion, Smith et al., (1979) used standard verbal intensity scales to obtain the patients', the physicians' and the nurses' ratings of pain. Their study of 2,299 women was also the first to quantify the relative painfulness of different stages of the abortion procedure (e.g., pelvic examination, injection, dilatation, aspiration and curettage). Their findings demonstrated that vacuum aspiration was the most painful stage of the procedure, followed by cervical dilatation and curettage, and that the youngest patients (17 years of age or less) and women who had very early (4 to 7 weeks) or late (12 to 15 weeks) abortions experienced more pain during abortion. Furthermore, the patients' ratings of pain revealed that, in spite of paracervical

blocks, 46% of women reported moderate levels of pain and 34% had severe or very severe pain during the procedure. Although adequate levels of agreement were obtained among the various staff's ratings, only moderately significant correlations were observed between the patients' and observers' pain measures. This remains the first study which examined the influence of medical factors, such as the gestational age and degree of dilatation, in subjective pain experienced in abortion. The role of obstetrical or gynecological antecedents was, however, not assessed. One other study examined the role of medical antecedents in pain following abortion under general anesthesia (Heisterberg et al., 1982). The results of this study revealed that women who had a history of dysmenorrhea or of pelvic inflammatory disease reported more days of pain following first-trimester abortion. No relationship was found between the number of days with post-abortion pain and age, parity, gestational age or previous abortions.

Taken together, the results of the studies presented in this section indicate that the majority of women experience some degree of pain during abortion by vacuum-curettage with paracervical blocks. A major problem which may account for the inconclusive and sometimes inconsistent findings has been the lack of adequate methods to measure pain. An equally important problem in this research area has been the general lack of consideration of psychological and social factors that have been shown to influence pain and which may be determinants of the pain experience in abortion.

Research so far has failed to use multidimensional measures of pain or to assess the relationships between pain during abortion and demographic, psychological, social and medical characteristics. The greater access to safe, early abortions in several countries now makes it relevant to assess the efficacy of current medical pocedures as well as to examine the subjective experience of

discomfort or pain associated with abortion. Moreover, abortion is an event often characterized by a number of stresses and conflicts which arise from the unintended pregnancy itself, its possible impact on the future life of the patient, and from the social and moral sanctions against abortion. The influence of each woman's emotional coping prior to abortion on her subjective experience of pain also remains to be explored.

Psychological Consequences of Abortion

Few sociomedical problems which deal with the psychological consequences of a medical intervention have received more attention than abortion. A huge literature has grown in various disciplines on the psychological and social characteristics of abortion-seekers, and on the psychosocial sequelae of abortion and of denied requests for abortion (for reviews see Cates, 1981; Figa-Talamanca, 1981; Forssman & Thuwe, 1966; Handy, 1982; Gibbons, 1984; Matejek, Dytrich & Schuller, 1985; Olson, 1980; Osofsky & Osofsky, 1973). Several methodological flaws, however, complicate the interpretation of results of many studies.

Some of the inadequacies in the published research may be summarized as follows:

1) There is a tendency to treat women seeking abortion as a homogeneous group, making no distinction between multiparous, married women and young, single, nulliparas; studies which have explored differences among these subgroups of women have used univariate statistics rather than multivariate analytical designs, making systematic interpretation of the results problematic.

2) There is a lack of definition of the concepts which are studied; words such as "guilt", "regret", and "depression" are used interchangeably with no attempt to define their meaning. The difficulty of measuring psychological morbidity is evident from the many terms used to describe symptomatology and behavioral

patterns. Symptoms may be viewed as guilt (Ashton, 1980; Pare & Raven, 1970), regret (Lask, 1975), adjustment in marital and interpersonal relationships (Ashton, 1980; Greer, Lal, Lewis, Belsey & Beard, 1976), or may encompass severe forms of depression, mania and psychosis (Brewer, 1977; David, 1972, 1985).

3) Various techniques are used to quantify psychological sequelae. Some studies employ 4- to 7-point rating scales, as part of patient questionnaires (Bracken, Phil, Hachamovitch & Grossman, 1974; Bracken, Klerman & Bracken, 1978; Freeman, 1977, 1978; Moseley, Follingstad & Harley, 1981; Payne, Kravitz, Notman & Anderson, 1976; Shusterman, 1979) and general practitioner questionnaires (Ashton, 1980), or are based on interviews by doctors or psychiatrists (Pare & Raven, 1970; Lask, 1975; Schmidt & Priest, 1980). Others have adopted a variety of personality and psychological tests, such as the Minnesota Multiphasic Personality Inventory (MMPI), the Symptom Check List (SCL-90), the Multiple Affective Adjective Check List (MAACL), the Hamilton Rating Scale or the Eysenck Personality Inventory (EPI) (Ashton, 1980; Belsey, Greer, Lal, Lewis & Beard, 1977; Freeman, Rickels, Huggins & Garcia, 1980; Greer et al., 1976; Lask, 1975; Moseley et al., 1981; Niswander, Singer & Singer, 1972).

4) Studies also vary considerably in timing of assessments and in lengths of follow-up, ranging from one hour post-abortion (e.g., Bracken, et al., 1974; Major, Mueller & Hildebrandt, 1985), 3 to 6 months (Lask, 1975; Osofky & Osofsky, 1972, 1973; Payne et al., 1976; Peck & Marcus, 1966), and even 3 to 4 years (Ekblad, 1955).

5) Finally, results obtained from one socio-cultural setting may not be applicable to others, and past research, even when adequate, may prove no longer valid since attitudes and laws toward abortion are changing rapidly.

Numerous researchers have described women's feelings before and after abortion (Belsey, et al., 1977; Freeman, 1977, 1978; Freeman, et al., 1980; Greer et al., 1976; Osofsky & Osofsky, 1972), the decision-process (Bracken, et al., 1974; Bracken & Kasl, 1975; Bracken et al., 1978; Friedlander, Kaul & Stimel, 1984; Lewis, 1980), the psychological side-effects (Brewer, 1977; David, Rasmussen & Holst, 1981; David, 1985), and the factors that place some women "at risk" for adverse emotional reactions (Adler, 1975; Belsey et al., 1977; Bracken, et al., 1974; David, 1985; Freeman, 1977; Friedman, Greenspan & Mittleman, 1974; Lask, 1975; Major et al., 1985; Moseley et al., 1981; Payne et al., 1976; Shusterman, 1979). In spite of sometimes loosely defined psychological concepts and wide variations in measures, analysis, interpretation and length of follow-up, most studies tend to indicate that anxiety, depression, ambivalence, and fearfulness are frequently reported before first-trimester abortion. The majority of studies also clearly suggests that most women experience an improvement in psychological status following termination, possibly as a result of the relief from the emotional distress of an unwanted pregnancy. The incidence of negative psychological or psychiatric sequelae appears to be remarkably low; in fact, it is as low or lower than the incidence for women during full-term pregnancy or postpartum (Brewer, 1977; David et al., 1981).

However, it has also been recognized that a small proportion of women experience considerable distress following abortion. Several authors have emphasized a number of factors which predispose to an adverse outcome. These include: ambivalence towards termination, coercion, multiparity, young age, unsupportive attitudes of family, partner and professionals, a history of psychiatric illness, religious and cultural beliefs about abortion, medical indications for termination (Adler, 1975; Ashton, 1980; Belsey et al., 1977; Bracken et al., 1974, 1978; David,

1985; Freeman, 1977, 1978; Friedman et al., 1974; Greer et al., 1976; Lask, 1975; Moseley et al., 1981; Payne et al., 1976), and late abortion by labour-inducing methods that involve the birth of a dead fetus (Kaltreider, Goldsmith & Margolis, 1979; Osofsky & Osofsky, 1973; Rooks & Cates, 1977). However, few studies have assessed the multivariate contributions of several of these factors in the prediction of pre- and post-abortion emotional responses based on standardized measures of known reliability and validity.

Overall, reviews of the literature suggest that psychological sequelae are rare and usually short-lived. In spite of considerable evidence that many women experience emotional distress before abortion, as well as substantial amounts of pain during suction-curettage, it is surprising that there is so little research on the role of psychological and social variables on the subjective experience of pain during abortion.

Acute Pain: Characteristics and Psychological Aspects

Acute pain refers to algesic states of relatively short duration and which usually have a well-defined cause and a characteristic time course. Bonica (1979, p. 15) described it as a "constellation of perceptual and emotional experiences, associated with certain autonomic, physiological and behavioral responses, which disappear after healing or termination of the noxious or tissue damaging stimulation". The rapid onset of pain, usually accompanied with reflexive withdrawal and particular patterns of non-verbal and verbal behaviors, is referred to as the phasic component of acute pain, and the longer-lasting pain which persists for

variable periods of time until healing takes place is the tonic component (Melzack, & Dennis, 1980).

The physiological, behavioral and psychological effects of acute pain have been extensively described by several authors (Bonica, 1977, 1979; Chapman, 1978a, 1978b; Sternbach, 1974, 1978, 1984). In general, acute pain of superficial, cutaneous origin is associated with an activation of the sympathetic-adrenergic nervous system; although complex and variable, these physiological responses involve cardiovascular and respiratory changes (elevation of blood pressure, tachycardia, peripheral vasoconstriction, increased oxygen consumption, and decreased volume associated with hyperventilation), gastrointestinal inhibition, muscular contraction or spasm, pupillary dilation and sweating. When pain is severe and related to visceral stress or disease, symptoms of collapse related to parasympathetic hyperactivity may occur: hypotension, bradychardia, tremor, nausea or vomiting (Chapman, 1978a). The nociceptive stimuli for visceral pain usually consist of ischemia, obstruction, spasmodic contractions, sudden or abnormal distention, or inflammation due to chemical injury, and are associated- with deep hyperalgesia and referred pain (Renaer, 1984; Renaer & Guzinski, 1978).

Behavioral responses to acute pain typically include verbalizations (screaming, moaning), facial expressions (grimacing), escape or palliative behaviors, an increase or decrease in gross motor activity, specific postures or a combination of these (Bonica, 1977; Craig & Prkachin, 1983; Sternbach, 1968). Increased irritability and social withdrawal are notable psychological effects, along with anxiety and apprehension directed at the source of pain, its treatment or its possibles consequences (Bonica, 1977; Craig, 1984a; Wall, 1979).

According to the Gate-Control Theory, intense stimulation of tissue activates the neural substrates of the sensory-discriminative, affective-motivational

and cognitive components of experience and behaviour (Melzack & Casey, 1968; Melzack & Wall, 1965, 1982). Thus, pain can be thought of as both a sensation of actual or impending injury as well as a need-state which commands attention, prompts the search for safety, care and rest, and which is accompanied by emotional responses of dislike, fear, anxiety or depression (Wall, 1979). Although sensory or "specificity" theories have dominated the literature on pain, and psychophysical studies have attempted to demonstrate a direct relationship between perceived pain and stimulus intensity, pain is an extremely variable, personal, subjective experience. Indeed, subjects who give highly reliable reports of the intensity of a stimulus may have difficulty if asked to report the painfulness of the same stimulus (Gracely, McGrath & Dubner, 1978), or may become more sensitive to the same stimulus in a clinical setting, presumably as a result of the different appraisal of pain signals (Dworkin & Chen, 1982). It is increasingly apparent, therefore, that pain requires a more comprehensive model than the classical attempt to understand it as a sensory experience provoked by external sources alone.

After Melzack and Wall (1965) proposed that pain perception is the result of interacting biological, physiological and psychological influences, substantial research has been devoted to the understanding of individual differences in pain experience. Melzack and Wall (1982), Craig (1980, 1984a, 1984b), Sternbach (1974, 1978, 1980) and Weisenberg (1977, 1984) have provided excellent reviews of studies and clinical observations that support the view that pain sensations are strongly affected by ongoing stimuli, by events in the immediate past, suggestion, and by the individual's beliefs, coping strategies, mood, personal background, interpersonal context and meaning of the experience.

Environmental stressors or major life changes that generate affective distress have been found to decrease pain tolerance in laboratory subjects (Harney

& Brigham, 1984) and to exacerbate clinical pain (Payne & Norfleet, 1986; Sternbach, 1974; Weisenberg, 1977). Individuals' reactions to stress and pain are assumed to depend on the appraisal of personal and external resources and support systems (Craig, 1978, 1980, 1983; Mohamed, Weisz & Waring, 1978; Neufeld & Kuiper, 1983). Furthermore, the interpretation of the events that precipitate pain, the nature of the injury and its impact on the person's life are now recognized as important determinants of responses to painful stimulation (Turk et al., 1983).

Fear, anxiety and neuroticism are usually associated with reports of increased pain or medication requirements (e.g., Beck & Siegel, 1980; Chapman & Cox, 1977; Klushman, 1975; Taenzer, 1983; Taenzer, Melzack & Jeans, 1986; Reading & Cox, 1985). However, the role of depression in acute pain has only recently been explored (Charlton, Klein, Gagliardi & Heimbach, 1983; Kent, 1984; Taenzer, 1983; Taenzer et al., 1986), although its association with chronic pain has been better documented (Bonica, 1979; Merskey & Spear, 1967; Pilowsky, Chapman & Bonica, 1977; Roy, Thomas & Matas, 1984; Sternbach, 1974, 1978).

Reviews of the literature on emotional and cognitive processes in pain generally acknowledge that personal and situational factors greatly influence pain perception. A major purpose of the present research was to explore the relationship between pain associated with pregnancy termination and a broad spectrum of individual variables which have been demonstrated to affect pain perception. This permitted the examination of demographic, personality, emotional and cognitive features as well as medical characteristics. The literature reviewed below will selectively focus on studies relevant to these aspects and will examine the laboratory and clinical investigations on acute pain of surgical, obstetrical and gynecological origin.

1. Demographic and Personal History Factors

The following section reviews the evidence on the influence of age, education and previous experience on pain perception. Sex differences are widely believed to affect pain reports, but reviews of the literature (e.g., Chapman, 1978a, 1978b; Otto & Dougher, 1985; Weisenberg, 1977) have revealed that the results are by no means consistent. There is, however, a trend for women to report lower sensation and tolerance thresholds than males. Investigations using signal-detection methods generally indicate that women have a lower response criterion to report pain compared to males (Clark & Mehl, 1971). However, reports on sex differences in dental surgery or post-operative pain (Taenzer et al., 1986; Van Buren & Kleinknecht, 1979; Wise, Hall & Wong, 1978; Wolfer & Davis, 1970) are inconsistent.

Age

The results of studies that examined the effects of age on pain threshold and tolerance in the laboratory are contradictory. Reviews (Chapman, 1978a, 1978b; Weisenberg, 1977) have suggested that this is most likely due to the differences in pain stimuli used. For example, for cutaneous pain, thresholds and tolerance appear to increase with age, but for deep pressure pain, they appear to decrease. For clinical pain, studies have frequently indicated that pain levels decrease with advancing age (e.g., Johnson, Rice, Fuller & Endress, 1978), while others have found no differences (Garron & Leavitt, 1979; Taenzer et al., 1986). For pain measured during labour, several studies report that pain decreases with advancing age in primiparous women (Davenport-Slack & Boylan, 1974; Melzack, Taenzer, Feldman & Kinch, 1981; Melzack, Kinch, Dobkin, Lebrun & Taenzer, 1984; Nettelbladt, Fagerstrom & Uddenberg, 1976), and others found no significant relationship (Niven & Gijsbers, 1984a).

Clinical observations have also suggested that suction-curettage tends to be more painful for younger women and teenagers (Bracken et al., 1974; Cates, 1981; Hodgson, 1981). One study which measured the patients' subjective reports of pain during first-trimester abortion (Smith et al., 1979), has demonstrated that youngest patients (15 years or less) experienced the most pain and the oldest (35 and over) experienced the least. No relationship was found between age and pain reports for women between 16 and 34 years of age. However, the authors did not report the correlations between pain ratings and age nor the partial correlations after controlling for the effect of parity or gravidity.

Education

Educational level, which is often used as an index of socio-economic status, has been reported to be correlated with pain. Higher levels of education are associated with lower clinical pain levels (Davensport-Slack & Boylan, 1974; Nettlebladt et al., 1976; Melzack et al., 1981; Taenzer, 1983) and higher pain thresholds for laboratory pain (Schluderman & Zubek, 1962). Other studies found no relationship (Choinière, 1985; Larson & Marcer, 1984; Niven & Gijsbers, 1984a).

Previous Pain Experience

Rising tolerance for experimental pain is frequently seen in pre-test and post-test designs (see, for example, Avia & Kanfer, 1980), suggesting that previous experience with pain enhances pain tolerance. In clinical pain, multiparous women (Melzack et al., 1981, 1984; Niven & Gijsbers, 1984a) and women who experienced severe pain outwith childbirth (Niven & Gijsbers, 1984b) tend to report lower levels of pain during labour. No relationship, however, has been found between the number of previous operations and post-operative pain (Taenzer, 1983).

Multiparous women have also been observed to experience less pain during abortion, although no study so far has reported the relationship between parity or previous abortions and dependent measures of pain. While previous experience of pain has been proposed to be an important determinant of current experience (Melzack, 1973), this relationship has received little attention in the literature on acute pain.

2. Emotions and Pain

The role of emotion in pain perception and response has been recognized by pain theorists (see Melzack, 1973; Melzack & Wall, 1982; Craig, 1984a, 1984b) and has received considerable attention by laboratory and clinical investigators.

Anxiety and Fear

Sternbach (1968, 1974) assigned a critical role to anxiety and stress associated with aversive stimulation. Anxiety (the anticipation of threat or harm) seems to consistently emerge as a prepotent modulator of pain perception and behaviour, and, in turn, can be stimulated by pain experience.

Anxiety refers to a constellation of phenomenological, behavioural and physiological responses associated with dysphoric mental states, which either characterize an individual's typical responses across a wide variety of situations or emotional instability (Trait-anxiety), or the individual's current, transient emotional status (State-anxiety). When the threatening object is known to the individual, the concept of fear seems closely related to situational anxiety.

In laboratory settings, pain reports are typically not correlated with anxiety (Chapman, 1978b; Chapman & Feather, 1973). The relationship between sensory and tolerance thresholds for laboratory pain and trait and state anxiety has

been widely investigated, but the results have not been consistent. Some studies report a decrease in thresholds associated with higher anxiety (Nichols & Tursky, 1967; Dougher, 1979; Schumacher & Velden, 1984), while others report no effect (Browne, Fader & Barber, 1973; Malow, 1981). Studies using signal detection methodology have been mixed regarding the effects of anxiety on pain sensitivity, but consistent in finding that anxiety increases response bias to report the stimuli as painful (Dougher, 1979; Malow, 1981; Schumaker & Velden, 1984).

In clinical settings, where pain is being expected or being experienced, heightened anxiety is typically found (Chapman & Cox, 1977; Spielberger, Auerbach, Wadsworth, Dunn & Taulbee, 1973; Johnston, 1980). Furthermore, several studies report a positive relationship between preoperative fear and anxiety, and post-operative pain (Martinez-Urrutia, 1975; Chapman & Cox, 1977; Scott, Clum & Peoples, 1983; Taenzer et al., 1986), dental pain (Kent, 1984; Van Buren & Kleinknecht, 1979), and childbirth pain (Beck & Siegel, 1980; Bonnel & Boureau, 1985; Klushman, 1975; Reading & Cox, 1985).

Many investigators have proposed a "pain-anxiety-tension" cycle to account for some acute and chronic pains, but such a model appears oversimplistic, lacks empirical support and does not take into account the specific cognitive processes that contribute to pain (Beck & Siegel, 1980; Craig, 1984b; Weisenberg, 1984). Although preparatory information, relaxation training, distraction and coping self-statements have been recognized as helpful in reducing distress and anxiety, reviews of the literature have revealed that several studies have not explicitly measured pain intensity, and among those which measured pain, many did not support the effect of information on clinical pain experience (Reading, 1979, 1982c; Taenzer, 1983; Tan, 1982; Turner & Chapman, 1982). For example, although prepared childbirth training is assumed to reduce fear, tension and pain, recent

studies have indicated that the intensity of pain during labour nevertheless remains extremely high (Melzack et al., 1981, 1984; Niven & Gijsbers, 1984a, 1984b).

Clinical observations suggest that anxiety and fear produce greater levels of pain during vaccum-curettage abortion, but only one study (Smith et al., 1979) measured pain and fear during abortion. No consistent relationship has been found between patients' pain reports and nurses' ratings of pre-operative fear. However, the correlations were not reported, and subjective measures of fear or anxiety were not used. No study so far has reported the relationship between standardized measures of pre-abortion anxiety and the experience of pain during or after abortion.

Depression

Depressive mood has traditionally been associated with chronic pain states both as a precipitant (Gallemore & Wilson, 1969) and as a reaction to prolonged suffering (Sternbach, 1968, 1974). Morgan and Horstman (1978), however, found that depressive scores contributed significantly to the prediction of laboratory reports. Recent studies also reported mixed results on the relationship between depressive affect and post-operative pain (Wise et al., 1978; Taenzer et al., 1986) and chronic pain (Garron & Leavitt, 1983; Magni, Salmi, deLeo & Ceola, 1984; Merskey & Boyd, 1978; Pilowsky et al., 1977; Roy et al., 1984). While recent neurochemical research has uncovered mechanisms which may affect both depression and pain (King, 1981; Ghia, Mueller, Scott & Mao, 1981; Rosenblatt, Reich & Dehring, 1984), studies of cognitive coping style and, particularly, of catastrophizing cognitions, suggest a psychological mechanism as well. Catastrophizing refers to thoughts or images of impending threat or disaster, or personal powerlessness, and appears to be a

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powerful mediator of distress, anxiety, depression and clinical pain (Chaves & Brown, 1978; Taenzer, 1983).

Although depression, self-blame, guilt and sadness are frequently reported feelings among abortion patients, few studies have used standardized measures of depression, such as the Beck Depression Inventory (Beck, Ward, Mendelson & Erbaugh, 1961). Moreover, none was found that examined the relationship between pre-abortion depression and pain during abortion.

The foregoing evidence has stressed that affect and cognitions characterized by obsessive preoccupation, pessimistic and self-critical thoughts, and feelings of being overwhelmed and helpless can produce enhanced subjective distress and pain.

3. Cognitive and Social Aspects

It is increasingly recognized that the emotional qualities of the pain experience are partly determined by people's appraisal of the events that precipitate the pain, the nature of the injury and its impact on their lives. Craig (1984a,1984b), Melzack and Wall (1982), Meichenbaum and Jaremko (1983), Turk et al., (1983) and Weisenberg (1984) have reviewed studies on the cognitive and social factors that influence pain and stress. The classic illustration of the impact of meaning on pain perception was provided by Beecher (1959), who contrasted the reaction patterns of injured soldiers and civilians who had undergone surgery. Furthermore, pain associated with specific injuries, diseases or medical interventions may have a special significance to the individual, and may reflect beliefs that originate in the family, peer groups, and community (Craig, 1978, 1980, 1983). The significance and desirability of a pregnancy, for example, were shown to be related to lower levels of pain in childbirth (Nettlebladt, 1976; Niven & Gisjbers, 1984a). As

predicted by the cognitive dissonance theory, the greater the individual's commitment to a cause involving pain, the more likely it is that pain will be reduced (Zimbardo, Cohen, Weisenberg, Dworkin & Firestone, 1966). Although difficulty in reaching a decision to seek an abortion and lack of social support have been recognized as contributing to pre- and post-abortion psychological distress, the relationships between ambivalence, specific ethical, social or physical concerns about pregnancy termination, and pain intensity during abortion have not been investigated.

Social Support

There is growing evidence that the amount of stress experienced is a function of appraisals of personal and external resources and support systems (Leventhal & Nerenz, 1983; Neufeld & Kuiper, 1983), and that prior personal and social experiences also influence pain perception and expression (Craig, 1978, 1980, 1983). Studies on the social/environmental factors that contribute to clinical pain, however, have traditionally focused on chronic pain populations. Poor marital, job, social and sexual adjustment are the most frequently reported findings in patients who have higher pain intensities (Feuerstein, Sult & Houle, 1985; Fordyce, 1976; Merskey & Spear, 1967; Mohamed et al., 1978; Payne & Norfleet, 1986). Moreover, behavioural theorists have proposed that the spouse may represent a discriminative cue for pain behaviours (Fordyce, 1976; Sternbach, 1974). The work of Block, Kremer and Gaylor (1980) has given this view further credence. They found that chronic patients reported higher levels of pain when they believed they were being observed by their solicitous spouse than when believed they were observed by a ward cleck. Interestingly, Melzack (1984) also observed that women's pain scores

during labour were more elevated when the husband was in the caseroom then when he was absent.

The importance of social support on the psychological outcome of early abortion is a well documented finding; yet, the influence of the actual presence of the partner, a peer or relative, in or out of the operating room, is seldom reported. Contrary to common expectation, however, Major et al., (1985) found that women accompanied by their partner were more fearful, had lower expectancies for coping before abortion, and were more depressed and reported more physical complaints immediately after abortion. Whether this finding of worse emotional and physical coping with abortion when women are accompanied by their partner is applicable to other population samples is not known.

In summary, the evidence suggests that psychosocial support and the environment are important dimensions in the regulation of affect (Meichenbaun & Jaremko, 1983), and chronic pain (Craig, 1980, 1984b; Payne & Norfleet, 1986). Scant attention, however, has been devoted to the influence of the presence of a companion in acute clinical pain. The influence of the partner's, a friend's or a relative's support on subjective pain reports during abortion remains unknown.

Expectancy of Pain

The predictability of a painful stimulus and accurate expectations regarding the onset, duration, intensity and sensory qualities of stressful event are known to minimize distress of patients undergoing invasive medical and dental procedures carried out when the patient is conscious (Anderson & Masur, 1983; Kendall, 1983). Although studies on preparatory information have shown beneficial effects upon post-surgical distress (e.g., Kendall et al., 1979; Reading, 1979, 1982c; Taenzer, 1983; Wardle, 1983), very few have demonstrated the effects of such

information on pain intensity (see Taenzer (1983) and Weisenberg (1984) for reviews) or on the accuracy of patients' expectancies (Wallace, 1985). In a recent paper, Wallace cites evidence which suggests that the accuracy of pain expectations determines the intensity of emotional distress. Generally, pain expectancy is positively related to pain intensity (e.g., Johnston, 1981; Kent, 1984; Wallace, 1985). The relationships between pain expectancy, perceived ability to tolerate pain, distress and pain reports need to be examined further in abortion pain.

4. Medical Characteristics

Pain of gynecological origin is usually caused by ischemia, obstruction, distention or contraction of smooth muscle and visceral organs (Renaer & Guzinki, 1978). On the basis of clinical observations, labour pain is known to increase as a function of increasing frequency and intensity of contractions and concomitant dilatation of the cervix (Corli, Grossi, Roma & Battagliarin, 1986). In addition, stretching and tearing of cervical, vaginal and perineal tissues, the shape of the woman's pelvic brim and the position of the baby all contribute to the pain (Bonica, 1967). Melzack and co-workers (1981, 1984) and Niven and Gijsbers (1984a, 1984b) have also indicated that parity, the mother's and the baby's weight, a history of menstrual problems and the artificial rupture of membranes are features significantly correlated with pain scores during labour.

Abortion pain, on the other hand, is assumed to be due to the rapid dilatation of the cervix and the suction of the uterine lining that triggers contractions. Clinical observations have also indicated that primiparas, women with a flexed uterus or a tight cervix and who have a more advanced gestation, experience more pain during abortion (Hern, 1984; Hodgson, 1981; Sciarra, 1982).

However, few studies have investigated the relationships between the patient's ratings of pain and antecedent medical characteristics. Strausz and Schulman (1971) reported that primigravidae appear to experience more pain in early abortion. Smith et al., (1979) found a curvilinear relationship between patients' ratings of pain during abortion and gestational age and width of cervical dilatation. Their findings revealed that very early (4 to 7 weeks from last menses), and late (12 to 15 weeks) gestations as well as greater levels of dilatation were associated with higher levels of pain. Heisterberg et al., (1982), in a study of risks factors following abortion with general anesthesia, found that women with a history of dysmenorrhea and pelvic inflammatory disease had more days of post-abortion pain, while gestational age, parity and previous abortions were unrelated to post-abortion pain. The relationships between these medical antecedents and subjective reports of pain experiences during abortion require further investigation.

In conclusion, examination of the methodologies of the investigations presented in this review suggests several issues which may account for the conflicting results on factors which influence abortion pain: (1) pain was measured using a variety of rating scales whose interrrelationships are unknown, and whose reliability and validity are typically not reported; (2) different scales have been used to measure the same psychological constructs; and (3) the timing between psychological evaluation and pain assessment was highly variable.

Pain Measurement

While laboratory studies have relied primarily on traditional psychophysical concepts of sensory and tolerance thresholds to assess the effectiveness of experimental manipulations, clinical studies must necessarily emphasize the patients'

subjective pain reports (see reviews by Chapman et al., 1985 and Gracely, 1983). Subjective pain has traditionally been measured with unitary intensity scales. Verbal rating scales which offer four to six categories to rate pain have been criticized for their lack of sensitivity (Huskisson, 1974; Ohnhaus & Adler, 1984). Visual analogue scales (VAS), originally introduced for the measurement of feelings (Aitken, 1969) have gained popularity as a method to measure pain intensity and pain relief (Huskisson, 1974; Scott & Huskisson, 1976). Sensitive, simple and easily reproducible, the VAS appears to be an adequate method to assess pain intensity, in combination with other scales (Littman, Walker & Schneider, 1985; Littlejohns & Vere, 1981).

Intensity scales, however, have been criticized for mapping a varied, complex, perceptual, affective and cognitive experience onto a single abstract dimension (Melzack, 1975). Melzack and Torgerson (1971) have analyzed words patients and physicians employ to describe pain and have developed a multidimensional rating scheme, the McGill Pain Questionnaire (MPQ; Melzack, 1975), to assess three major dimensions of pain: the sensory-discriminative, affective-motivational, and cognitive-evaluative components of pain (Melzack & Casey, 1968). Subsequent studies have confirmed the reliability and validity of the multidimensional structure and the questionnaire's sensitivity for diagnostic discrimination and for the measurement of differential treatment effects (see Reading, 1983, 1984). Indeed, the MPQ has proved to be sensitive enough to discriminate the qualitative properties of various pain syndromes (Dubuisson & Melzack, 1976), of patients with or without affective disturbance (Atkinson, Kremer & Ignelzi, 1982; Kremer & Atkinson, 1981, 1983, 1984), and between patients suffering from different types of headache (Hunter & Philips, 1981) and toothache (Grushka & Sessle, 1984) on the basis of the patterns of words or derived scores.

Furthermore, results of studies by Reading (1982b), Melzack (1975), and Melzack, Wall and Ty (1982) suggest that the MPQ yields distinctive profiles of pain words for acute and chronic pain, with more affective descriptors of pain being associated with chronic pain syndromes compared to acute types of pain.

Overall, the present review of the literature on pain in early abortion indicates that several methodological shortcomings may explain the inconclusive, sometimes contradictory results regarding individual differences in the experience of pain in abortion. A major problem in past research on the effectiveness of anesthetic or analgesic methods has been the lack of satisfactory instruments to measure pain. Studies that measured subjective pain reports in abortion have used single pain intensity scales (Smith et al., 1979; Suprapto & Reed, 1984; Stringer et al., 1975), while other studies have used observers' ratings of discomfort (Strausz & Schulman, 1971; Frymire & French, 1974). Other investigators reported the incidence of pain among patients during abortion (e.g., Rosen et al., 1984) or after general anesthesia (e.g., Heisterberg et al., 1982).

Although observers' ratings may represent an appealing, "objective" method of pain assessment, the relationship between the patients' reports and these ratings is often not reported. Furthermore, few consistent results have been found in studies that examined how patient characteristics influence nurses' inferences of pain. For example, although Oberst (1978) reported that nurses infer less pain in younger patients, than middle or elderly patients, Dudley and Holm (1984) found that neither age nor sex was related to nurses' ratings of pain. Overall, given the fact that the effects of patient characteristics on inferences of pain are unclear, the relationships between different raters need to be more closely examined.

In summary, the above considerations indicate that an adequate assessment of pain must include multidimensional subjective measures and require that the

relationships among different methods of pain estimation be examined. None of the studies included in this review meets all these standards. In view of the single pain intensity scales used in previous studies, and the limited nature of the methodological designs, the inconsistent and inconclusive results regarding the effects of psychological, social and medical factors on abortion pain become understandable.

Goals of the present research

The review of the literature regarding pain in first-trimester abortion reveals three serious deficiencies: a) no systematic, multidimensional survey of the incidence and intensity of pain experienced in abortion has been reported; b) the relationships between pain and relevant medical and demographic background variables have not been explored systematically, and c) the relative importance of psychological and psychosocial factors as compared to background variables has not been assessed. The present research is an attempt to address these three needs.

In this study, the assumption of multiple influences on pain-generating mechanisms proposed by Melzack and Wall in the Gate-Control theory (1965, 1982) was explored as a potential explanation for the experience of pain in abortion. Several tests were selected to measure self-reports of negative mood states, expectations of pain and tolerance, ambivalence and areas of concern and social support. Moreover, information was collected regarding a range of medical and demographic variables, and their relationships to the patients' antecedent feelings and to their reports of pain were explored. The study was based on a hierarchical multiple regression/correlation design, in which the contributions of psychological, social and medical factors to pain and distress in abortion were assessed after

controlling statistically for those contributions associated with demographic variables. The strategy, therefore, was to assess the predictive power of medical, affective and psychosocial features regarding pain and distress in abortion, above and beyond that afforded by relevant demographic information (Cohen & Cohen, 1975). The present study also examined the contribution of psychosocial, demographic and medical features to the affective responses before and after abortion by multiple stepwise regression analyses in the attempt to determine the characteristics of patients most at risk for negative reactions.

METHODS

Subjects

A sample of 109 women, ranging in age from 13 to 34 years (M=21.5, S.D.=5.1), who underwent voluntary termination of first-trimester pregnancy, consented to participate to the study. The subjects were patients referred from three local health centers to a central government-funded C.L.S.C. clinic (community health and social services center) in Montreal. Patients who requested an abortion during the period of the study were informed by the nurses or physicians of the nature of the research upon their initial visit at the clinic. Those who expressed interest in participating in the project met with the researcher on the day of their abortion appointment. Only four women declined to participate and two subjects were too incapacitated by physical symptoms to take part in the research. Four English-speaking patients were not included in the study because no adequate sample size for this linguistic group could be obtained within the mainly French-speaking population served by the clinic. No inclusion criteria were used other than an acceptable comprehension of the French language. (All materials to be described below, and included in Appendices A to E).

Procedure

Overview

Patients scheduled to undergo a first-trimester abortion by aspiration-curettage in the C.L.S.C. outpatient clinic were seen, prior to their appointment at the clinic, by one of eight trained nurses-sexologists. The purpose of the initial contact was to : 1) provide information about the intervention, 2) have necessary medical tests performed, and 3) begin the collection of demographic and biographical information (see Appendix B).

On the day of their abortion, the subjects met with the experimenter, who explained the procedure and requirements of the research, and were asked to sign a consent form (Appendix A). Following this introduction, the experimenter collected information on the participants' feelings and thoughts. A paper-and-pencil questionnaire format was chosen for all of the assessments in the present study. However, the researcher personnally introduced each section and allowed the patients to complete the questionnaires alone. Each assessment session required approximately 20-30 minutes. The pre-abortion assessment (Appendix B) consisted of standardized psychological tests of state-anxiety and depression as well as a series of questions designed to gain information on the complexity of the abortion decision process, issues of concern, expectancy of pain and perceived tolerance to pain. Post-operative data were collected in the recovery room shortly after the abortion was completed. The post-abortion assessment (Appendix C) was designed to obtain information on pain levels during and after the procedure as well as on the patients' emotional coping and evaluation of the care. Additional information was collected from the attending nurses, who independently rated the patients' pain and distress during and immediately after the intervention, and from the performing physicians on procedural details and medical events in the abortion itself (Appendix D). The data recorded by staff members were collected after all interactions with the patient were completed. To insure as much privacy as possible, and thus allow less biased reports of pain and of treatment evaluations, care was taken to have the participants complete the post-abortion questionnaires in the absence of the attending staff. The data on relevant demographic and medical information are shown in Table 1.

Follow-up data were collected approximately two to three weeks after the abortion, when patients returned for their medical visit. The information obtained consisted of standardized psychological tests of anxiety and depression to assess

TABLE 1

Demographic and Medical Information Obtained From the Participants Before Abortion and Procedures Recorded by the Staff Members (N = 109)

Demographic		Mean	s.d.	Range
Age		21.5	5.1	13-34[a]
Education (in years)		12.6	3.2	7-20
			n	%
Education Level	- High School		60	55.0
	- Junior College		12	11.0
	- University		37	34.0
Status	- Single		100	91.7
	- Married		6	5.5
	- Separated		3	2.8

Medical		Mean	s.d.	Range
Gestational Age (in weeks)		8.3	1.9	5-14
			n	%
Retroversed Uterus			25	22.9
Gravidity	- No prior pregnancy		76	69.7
	- One or more pregnancy		33	30.3
Parity	- No prior birth		93	85.3
	- One or more pregnancy		16	14.7
Abortion	- No prior induced abortion		84	77.1
	- One or more abortion		25	22.9
Dysmenorrhea			36	33.0
Procedure	- Aspiration		37	34.0
	- Aspiration and curettage		72	66.1
	- Additional aspiration		10	9.2
	- Forceps		1	0.9
		Mean	s.d.	Range
Amount of local anesthetic (mg Xylocaine)		198.8	32.1	150-220
			n	%
Premedication Request	- Valium (10 mg)		3	2.8
	- Empracet (30 mg)		1	0.9
Postmedication Request	- Empracet (30 mg)		5	4.6

Note a: Thirty-five percent of the participants were less than 17 years of age, 31% were between the ages of 20 and 24, and 34% were 25 years and over. This age distribution is comparable to those reported by Tietze (1983) and Henshaw and O'Reilly (1983) for U.S. and Canada abortion rates.

short-term changes in psychological status, and the physician's report on medical complications (Appendix E). Problems of confidentiality prevented the staff and researcher from contacting patients to remind them of their follow-up appointment; in combination with logistical mishaps, this led to an attrition of 20% of the sample. The remaining sample (n=87), however, appears to be representative of the initial group of patients with respect to demographic, medical, affective and pain characteristics: statistical tests (Table 2) revealed no significant differences between participants who returned for follow-up and those who did not on any of the variables.

Medical Procedure

The standard procedure began with an initial meeting of the patient with the clinical staff to obtain biographical and medical data and to discuss intervention procedures. On the day of her appointment, the patient, after completing the pre-abortion assessment, remained with an attending nurse throughout the procedure. If she wished, she could have a companion with her in the operating room or waiting in the recovery room. The physician began with a pelvic examination to estimate the gestational age and the configuration of the uterus, inserted a sterile vaginal speculum and wiped the vagina with an antiseptic solution. Three cc of 1% xylocaine with epinephrine (1 per 100,000) were then injected at 12 o'clock on the cervix to place the tenaculum. Paracervical anesthesia, to a total volume of 15 to 22 cc was given at 4, 5, 7 and 8 o'clock to raise a wheal of anesthetic. Dilation was undertaken three minutes after the last injection to admit a rigid vacuum cannula of 6 to 12 mm depending on gestational age. After aspiration, a curette was used in some cases to confirm that the uterus was empty, and if needed, additional aspiration was performed. The patient recovered for a few minutes on the table and then walked to

TABLE 2

Comparisons of Subjects Who Returned for Follow-Up and Those Who Did Not on Demographic, Medical, Psychosocial Variables, and Pain and Distress Measures

Variable	Follow-Up Participants (n = 87)		Follow-Up Non-Participants (n = 22)		Test Value	p
Demographic	**Mean**	**s.d.**	**Mean**	**s.d.**		
Age	21.6	5.2	21.5	4.9	t = -0.02	ns
Education	12.8	3.1	11.9	3.5	t = -1.13	ns
Medical	**Mean**	**s.d.**	**Mean**	**s.d.**		
Gestational Age	8.3	2.0	8.3	2.2	t = 0.06	ns
Anesthetic (mg)	197.7	33.2	207.3	27.6	t = 1.38	ns
	n	**%**	**n**	**%**		
Gravidity	26	29.9	7	31.8	x_2^2 = 0.09	ns
Parity	12	13.8	4	18.2	x_2^2 = 0.29	ns
Abortion	19	21.8	6	27.3	x_2^2 = 0.32	ns
Retroversed Uterus	19	21.8	6	27.3	x_2^2 = 0.32	ns
Dysmenorrhea	37	31.0	9	40.9	x^2 = 0.74	ns
Psychosocial	**n**	**%**	**n**	**%**		
Presence of partner	40	45.5	10	46.0	x_2^2 = 0.66	ns
Presence of friend	22	25.3	7	31.8	x_2^2 = 0.80	ns
Any company	73	83.9	20	90.9	x_2^2 = 0.66	ns
Companion in room	47	54.0	9	40.9	x_2^2 = 1.21	ns
Reasons: - Socioeconomic	61	30.1	15	68.2	x_2^2 = 0.02	ns
- Studies/work	49	56.3	9	40.9	x_2^2 = 1.67	ns
- No desire	30	34.5	13	59.1	x_2^2 = 3.03	.05
- Interpersonal	13	14.9	2	9.1	x^2 = 0.47	ns
Affective/Cognitive	**Mean**	**s.d.**	**Mean**	**s.d.**		
State-Anxiety (STAIS-1)	48.6	8.4	46.9	12.2	t = -0.78	ns
Depression (BDI-1)	13.1	8.9	12.1	8.6	t = -0.49	ns
Decision difficulty[a]	4.1	3.1	3.3	3.0	t = -1.02	ns
Hesitation present[a]	1.9	2.1	2.3	3.1	t = 0.72	ns
Fear[a]	5.4	2.1	5.7	2.6	t = 0.46	ns
Expectancy of pain[a]	4.5	1.9	5.1	2.4	t = 1.26	ns
Tolerance to pain[a]	5.4	2.4	5.7	2.5	t = 0.45	ns
Issues: - Pain[b]	2.0	1.0	1.8	0.8	t = 1.43	ns
- Moral[b]	2.5	1.1	2.7	1.1	t = 0.87	ns
- Social[b]	3.3	1.0	3.5	0.9	t = 0.79	ns
Pain and Distress in Abortion	**Mean**	**s.d.**	**Mean**	**s.d.**		
Pain intensity (PVAS1)	5.5	2.6	5.8	2.7	t = 0.53	ns
MPQ total pain score (PRIT)	26.1	13.4	23.9	13.5	t = -0.70	ns
Distress rating (DVAS)	4.4	3.0	3.9	3.7	t = -0.69	ns
Quality of care rating[c]	3.9	0.4	3.8	0.4	t = -0.96	ns

Note a: Ratings obtained on VAS scales with values ranging between 0 and 10

Note b: Ratings with values between 1 and 4 and that are inversely coded (smaller values refer to greater importance of issue).

Note c: Ratings with values between 1 and 4.

the recovery room with her nurse. Following her return, the researcher asked the subject to rate her pain experience during the procedure, and 15 and 30 minutes later on a series of measures which constituted the post-abortion assessment questionnaire. Meanwhile, the nurse independently rated the patient's reactions on several measures of pain and distress. Recommendations about post-abortion care and an appointment for follow-up visit were given before the patient left the clinic.

Assessment Materials and Variables

In all, four types of information were collected: (1) demographic and medical information, (2) psychological measures before and after abortion, and psychosocial factors regarding the termination of pregnancy, (3) pain experienced during and after the abortion procedure, and (4) satisfaction with care.

1. Demographic and medical information. The following were obtained from each participant: age, education, occupation, marital status, ethnicity, history of previous pregnancies, births, abortions or miscarriages, pelvic infections and surgeries, dysmenorrhea (defined as menstrual cramps of sufficient severity to take medication or interfere with social or work activities), retroversion of the uterus and weeks of gestation (Appendix B). This information was recorded by the clinical staff, independently of the interviewer, and collected after all interactions with the patient were completed. The demographic and medical information in Table 1 suggests that the population consisted largely of young, single, educated women who were primigravidae or nulliparas who were having a first abortion. The mean gestational age, determined by pre-operative examination and by post-operative

inspection of aspirated material ($r=.90$, $p<.001$), was 8.2 weeks from last menses--well within the first-trimester of pregnancy.

2. Psychological Assessment Questionnaires. A series of paper-and-pencil self-report measures were assembled to assess situational and dispositional psychological variables and psychosocial factors that have been postulated in previous studies to influence clinical or experimental pain perception. These were:

a) State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsch & Luschene, 1970; translated into French by Bergeron & Landry (1974), in Bergeron, 1983). This 40-item instrument is widely used in psychological research to measure both situational ("state") and dispositional ("trait") anxiety. In previous research with surgical populations, the STAI-Trait scale has been shown to be stable, while the STAI-State is sensitive to changes in affect that accompany the surgical experience (Spielberger et al., 1973; Reading, 1982; Taenzer, 1983). In the present study, the STAI-State scale was administered before abortion (STAIS-1) and at follow-up (STAIS-2). Given the preoperative time constraints in the clinic, the STAI-Trait scale (STAIT-2) was included only in the follow-up assessment package.

b) Beck Depression Inventory (BDI) (Beck, Ward, Mendelson & Erbaugh, 1961; translated into French by Gauthier, Morin, Thériault & Lawson, 1982). This 21-item self-report inventory covers a wide range of somatic and psychological symptoms and has been widely used in clinical research on depression. It evaluates the severity of negative affect toward self, performance difficulties, general unhappiness and loss of personal and social interest. Reliability and validity data have been reported by Reynolds and Gould (1981), and norms for the French adaptation have been published by Gauthier and co-workers (1982). In the present study, the BDI was part of the pre-abortion (BDI-1) and follow-up (BDI-2) test batteries.

Other psychosocial and expectancy variables were assessed by Visual Analogue Scales (Aitken, 1969). The following measures were included in the pre-abortion assessment battery (Appendix B):

c) Decision-making process variables were defined as the subject's difficulty in deciding whether to pursue or terminate the pregnancy and the involvement of others in reaching the decision to abort. Patients indicated along two horizontal 10-cm lines the degree of difficulty they felt regarding this decision (ranging from "no difficulty" to "a great deal of difficulty"), and the degree of hesitation they experienced on the day of the intervention (using "no hesitation" to "a great deal of hesitation" as verbal anchors). These scores (with values ranging from 0 to 10) were used as indices of initial and unresolved ambivalence respectively. The complexity of the decision-making process was also indicated by the patient's report that the decision had been reached alone, with the help of a partner, a friend, a family member or a professional.

d) Anticipatory affect and expectancy. The patient's preoccupation, fear and expectancy of pain, and perceived ability to tolerate pain were also evaluated. Preoccupation with the abortion in the week prior to the appointment, and fearfulness were measured by self-ratings on visual analogue scales (using "I have not thought about it" to "I have thought about it a great deal", and "I am not worried" to "I am very frightened" as anchor words, respectively). In addition, subjects were asked to indicate the amount of discomfort they expected with the procedure (ranging from "no pain" to "unbearable pain") and their perceived tolerance to pain (ranging from "I have very little" to "I have a great deal of tolerance to pain").

e) Problematic issues in abortion. Four issues, which often concern patients or contribute to their difficulty with the event, were examined: moral dilemmas, fears of social disapproval, the risks of medical complications and of pain. The

importance of each of these four aspects was indicated by patients' assignment of rank-order values (ranging from 1= most important to 4= least important issue; these variables were therefore inversely-coded, i.e., lower ratings reflected greater importance of these issues).

f) Reasons for requesting abortion were classified into eight categories. The patients indicated during the interview with the trained nurses which of these reasons were most relevant to them. The motivations were defined as follows: 1) socioeconomic (housing or financial resources are insufficient); 2) interpersonal problems (the couple relationship is unstable or disrupted; 3) study or work plans (pregnancy would jeopardize carreer or study plans undertaken); 4) close birth or completed family (pregnancy occurs shortly after the birth of a child or when patient feels that her family is completed); 5) no desire (patient and/or partner do not wish to have children); 6) age (patient is too young to take the responsability for providing care for a child); 7) health (medical problems threaten the safety of patient if pregnancy were continued); 8) rape (patient was victim of rape or incest from which pregnancy ensued). A maximum of three motivations for terminating the pregnancy were recorded for each patient.

g) Presence of a companion was defined as any person who came with the patient on the day of their abortion. The individuals who accompanied the patients were observed to be either: 1) the partner; 2) a friend; 3) a family member (often sister or mother); 4) a professional worker (school nurse or social worker). The companion was free to stay with the patient in the waiting room and recovery room, and could also assist her in the operating room. The person who accompanied the patient and his/her absence or presence in the operating room were recorded.

3. Pain Assessment Questionnaire

This questionnaire consisted of a series of pain measurement scales that were administered in a paper-and-pencil format, but where the interviewer introduced each item before allowing the patient to complete it on her own. This procedure was chosen because subjects often felt fatigued shortly after the intervention and frequently needed some guidance in completing the materials. This assessment included the McGill Pain Questionnaire (MPQ; Melzack, 1975), standard verbal pain rating scales (SPS), and Visual Analogue Scales that provided estimates of the intensity of pain (PVAS) and distress (DVAS) during the abortion procedure and recovery (e.g., PVAS3). The MPQ was the main instrument utilized to measure the characteristics of the pain experienced during first-trimester abortion.

A. McGill Pain Questionnaire (MPQ; Melzack, 1975)

The MPQ consists primarily of 20 sets of adjectives from which the subject selects the words that best describe her pain experience. The adjectives, which are scaled according to their relative intensity within each set, describe the sensory, affective and evaluative dimensions of the pain experience; miscellaneous adjectives provide a further description of the pain experience. Qualitative profiles and quantitative scores for each dimension, as well as a total pain score, can be derived from the summed rank values of the adjectives selected. In addition to pain descriptors, the questionnaire includes line drawings of the body to indicate pain locations (drawings of the female body and the perineal area were used for this study), three additional word categories representing the time course of the pain and a verbal pain rating scale which provides an overall measure of pain intensity (present pain intensity: PPI). The PPI scale uses 6 words, each associated with a number ranging from "0" for "no pain" (pas de douleur) to "5" for "excruciating pain"

(insupportable). The MPQ has been used in many clinical studies (e.g., Hunter & Philips, 1981; Grushka & Sessle, 1984; Reading & Newton, 1977) and treatment trials (e.g., Fox & Melzack, 1976; Melzack & Perry, 1980; Melzack et al., 1981). Furthermore, it satisfies important psychometric standards, as indicated by the reliability and validity data published by Melzack (1975), Reading (1983), and Klepac and Lander (1983). The French version of the MPQ used in the present study was developed by one of Melzack's co-workers (Suzanne Veilleux) and is routinely used at the Pain Clinic of the Montreal General Hospital. However, since the internal structure of the French MPQ had not yet been submitted to a validity study, two additional common pain scales were included in the post-abortion assessment questionnaire: a non verbal pain scale, the Visual Analogue Scale (PVAS) and a standard 5-point pain rating scale (SPS) that is often used in clinics and hospitals to evaluate the effectiveness of various pharmacological treatments, for example. The procedure used in this study to assess the validity of the French version of the MPQ is discussed in section C.

B. Visual Analogue Scale (PVAS) and Standard Pain Intensity Scale (SPS)

The PVAS scales utilized in this research consisted of 10 cm lines that each represented a continuum from "no pain" to "unbearable pain". The subject was asked to mark the line at a point corresponding to the intensity of her pain, without having to relate it to a specific word or number. High, significant correlations have been reported between the PVAS and the numerical and verbal pain rating scales (see Huskisson, 1983; Littlejohns & Vere, 1981), as well as with the MPQ scales (Choinière, 1985; Taenzer, 1983). PVAS ratings were obtained from patients to describe the levels of pain they experienced during the abortion procedure (PVAS1), as well as 15 and 30 minutes later (PVAS2, PVAS3). Ratings at these three time

periods were also obtained on a standard 5-point verbal pain rating scale (SPS) using "no pain", "mild", "moderate", "severe" and "unbearable", with scores ranging from 0 to 4. These two scales were presented in counterbalanced order. Moreover, VAS scales were used to assess other outcome variables, such as the levels of distress (DVAS) with the abortion experience (using "not distressing" to "very distressing" as anchor words) and the patient's estimation of how her actual experience compared with her initial pain expectations (ranging from "pain was much less than expected" to "much worse than expected"). Finally, VAS and SPS scales were also utilized to obtain the independent observer's ratings of pain (ObPVAS) and distress (ObDVAS). Attending nurses completed the scales separately, immediately after patient's return to the recovery room.

C. "Questionnaire de Douleur Saint-Antoine" (QDSA; Boureau, Luu, Doubrère & Gay, 1984). A recent French questionnaire, designed from methodologically comparable experiments as those which had originally led to the MPQ (Melzack & Torgerson, 1971), was used to assess the concurrent validity of the French version of the MPQ. Historically, the QDSA evolved from the attempts of a group of European researchers to adapt the MPQ into French. Given the important semantic differences between two already existing translations of the MPQ originating from Canada ("Questionnaire Algie" and the Melzack-Veilleux adaptation), Boureau and his colleagues, rather than undertake a third translation, replicated Melzack and Torgerson's experiments. A list of 61 words, grouped into 17 categories of descriptors, constitute the final QDSA questionnaire. These words were classified by patients, students and physicians into categories which represent sensory, affective and evaluative dimensions of pain. Quantitative pain scores on the QDSA are calculated in the same way as the PRI's in the MPQ, i.e., by the summed rank values

of the words selected (QPRI's). Yet another pain rating score can be derived from the QDSA: from the weights or intensity ratings (0= "aucun" (not at all) to 4= "extrêmement fort" (extremely severe)) assigned by the patient to each pain attribute chosen. High correlations have been reported between the QPRI's and the assigned rating scores (QPRIG's) (Boureau, et al., 1984). Thus, in order to test the validity of the French version of the MPQ currently used, both the QDSA and the MPQ were presented in counterbalanced order to a subsample of 43 patients who participated in the study during the last few months of the research. The quantitative and qualitative characteristics of pain derived from both questionnaires were compared and the consistency in choices of descriptors was examined. The subsample of subjects who participated in this additional study were representative of the original sample in demographic, medical, affective and pain characteristics. Table 3 reveals no significant differences between members of this subsample and the remaining sample on most variables. The results of the comparability analyses are in Appendix F.

D. Other outcome measures: Satisfaction with the quality of care. Treatment evaluation measures were included in the post-abortion assessment. These outcome measures were obtained from patients, in the absence of clinical staff members and the interviewer, to allow as much privacy as possible. Patients provided ratings of their satisfaction with the quality of care and staff attitudes (Treadway, 1983). These measures examined the extent to which the participants felt understood, supported, and assessed their evaluation of the general quality of care received at the clinic. Thus, treatment evaluation responses were obtained from two VAS scales (ranging from "not at all" (understood/supported) to "a great deal") and a 4-item verbal rating scale (using "excellent", "good", "fair" and "poor" as anchor words).

TABLE 3

Comparisons of Subjects Who Completed the QDSA and Those Who Did Not on Demographic, Medical, Psychosocial Variables, and Pain and Distress Measures

Variables	QDSA Participants (n = 43)		QDSA Non-Participants (n = 66)		Test Value	p
Demographic	**Mean**	**s.d.**	**Mean**	**s.d.**		
Age	21.9	5.9	21.3	4.7	t = -0.63	ns
Education	12.1	3.2	12.9	3.2	t = 1.33	ns
Medical	**Mean**	**s.d.**	**Mean**	**s.d.**		
Gestational Age	8.2	1.8	8.3	2.1	t = 0.36	ns
Anesthetic (mg)	184.2	35.4	208.3	26.8	t = -3.08	.001*
	n	**%**	**n**	**%**		
Gravidity	15	34.9	18	27.3	x^2 = 0.73	ns
Parity	9	20.9	7	10.6	x^2 = 2.19	ns
Abortion	10	23.3	15	22.7	x^2 = 0.00	ns
Retroversed Uterus	12	27.9	13	19.7	x^2 = 0.99	ns
Dysmenorrhea	15	34.9	21	31.8	x^2 = 0.11	ns
Psychosocial	**n**	**%**	**n**	**%**		
Presence of partner	20	46.5	30	45.5	x^2 = 0.03	ns
Presence of friend	9	20.9	20	30.3	x^2 = 1.38	ns
Any company	37	86.0	56	84.8	x^2 = 0.03	ns
Companion in room	27	62.8	29	43.9	x^2 = 3.70	ns
Reasons: - Socioeconomic	32	74.4	44	66.7	x^2 = 0.74	ns
- Studies/work	21	48.8	37	56.1	x^2 = 0.55	ns
- No desire	9	20.9	34	51.5	x^2 = 10.20	.01
- Interpersonal	7	16.3	8	12.1	x^2 = 0.38	ns
Affective/Cognitive	**Mean**	**s.d.**	**Mean**	**s.d.**		
State-Anxiety (STAIS-1)	47.9	8.5	48.4	9.7	t = 0.28	ns
Depression (BDI-1)	12.1	7.7	13.3	9.5	t = 0.69	ns
Decision Difficulty[a]	3.7	2.9	4.0	3.2	t = 0.49	ns
Hesitation present[a]	2.0	2.5	2.0	2.3	t = 0.01	ns
Fear[a]	5.2	2.2	5.7	2.2	t = 1.13	ns
Expectancy of pain[a]	4.6	1.9	4.7	2.0	t = 0.33	ns
Tolerance to pain[a]	5.4	2.2	5.6	2.6	t = 0.34	ns
Issues: - Pain[b]	1.7	1.0	2.1	0.9	t = -1.93	ns
- Moral[b]	2.7	1.0	2.4	1.2	t = -1.34	ns
- Social[b]	3.4	1.0	3.3	1.1	t = -0.58	ns
Pain and Distress in Abortion	**Mean**	**s.d.**	**Mean**	**s.d.**		
Pain Intensity (PVAS1)	5.7	2.7	5.5	2.6	t = -0.49	ns
MPQ total pain score (PRIT)	26.9	14.4	24.9	12.8	t = -0.77	ns
Distress rating (DVAS)[c]	4.3	3.1	4.3	2.9	t = -0.00	ns
Quality of care rating[c]	3.9	0.3	3.8	0.4	t = -1.89	ns

Note a: Ratings on VAS scales with values ranging from 0 to 10.
Note b: Rank-order ratings with values between 1 and 4 and inversely-coded.
Note c: Ratings with values between 1 and 4.
Note *: A third physician who joined the clinical team in the last months of the study, used smaller doses of anesthetic (150 mg), which are however, within recommended ranges (see Hern, 1984; Hodgson, 1981).

The data collected before and after the abortion and at the follow-up visit, and the results of the analyses performed to evaluate the contribution of demographic, medical and psychosocial variables to pain and distress in abortion, are the object of the next chapter. Also included in this chapter are the analyses investigating the determinants of affective responses before and shortly following an abortion.

RESULTS

The results are presented in four sections. The first is devoted to the statistical analyses on the characteristics of pain during abortion. The second presents the data on the affective and psychosocial features of women and analyzes the sources of inter-individual variability in depression and anxiety before abortion. The third section analyzes the predictors of pain and distress in abortion. The final section describes affective responses two-weeks after abortion and presents the results on the predictors of emotional reactions at follow-up.

1. Characteristic Pain Patterns in Abortion

A. Qualitative Characteristics

The MPQ adjectives chosen by 33% or more of the subjects to describe their pain during the abortion procedure are listed in Table 4. The mean number of words chosen (M=11.7, S.D.=4.8, range 3-20) indicates that the women felt appreciable levels of pain during the procedure. Table 5 displays the response profile of the total group on the 20 subclasses of the MPQ. Interestingly, more than 80% of women chose at least three words of the sensory dimension (e.g., "beating" (qui élance); "jumping" (par secousse); "cramping" (qui crampe); "pulling" (qui tire)), and more than 60% used a word in the evaluative (e.g., "annoying" (agaçante) or "miserable" (intense)), the affective (e.g., "tiring" (fatiguante) ; "fearful" (épeurante)) and the miscellaneous (e.g., "drawing" (tendue); "nagging" (énervante)) categories of pain descriptors. Comparisons of the mean number of words chosen in each dimension revealed that the subjects selected significantly more sensory

TABLE 4

MPQ Words Used by 33% or More Women to Describe Their Pain Experience in Abortion (n = 109)

MPQ Category		Descriptor		Percentage
Sensory	1	"qui élance"	(beating)	33.0%
	2	"par secousse"	(jumping)	43.1%
	3			
	4			
	5	"qui crampe"	(cramping)	54.1%
	6	"qui tire"	(pulling)	36.7%
	7			
	8			
	9			
	10	"crispée"	(taut)	33.0%
Affective	11	"fatiguante"	(tiring)	40.4%
	12			
	13			
	14			
	15			
Evaluative	16	"agaçante"	(annoying)	36.7%
Miscellaneous	17			
	18			
	19			
	20	"énervante"	(nagging)	51.4%
Time Course	21			
	22	"rythmique"	(rythmic)	45.9%
	23			

TABLE 5

Frequency (%) of Use of the MPQ Categories of Pain Descriptors (N = 109)

MPQ Word Category		Percentage
Sensory	1	93.6
	2	78.0
	3	78.9
	4	58.7
	5	89.9
	6	81.7
	7	37.6
	8	30.3
	9	67.9
	10	72.5
Affective	11	61.5
	12	23.9
	13	42.2
	14	36.7
	15	22.0
Evaluative	16	73.4
Miscellaneous	17	56.0
	18	75.2
	19	30.3
	20	61.5
Time Course	21	25.7
	22	45.9
	23	28.4
Pain Location	Pelvic area	63.0
	Perineum	46.8
	Back	26.6
	Legs	15.8

(M=0.7, S.D.=0.2)* and evaluative words (M=0.7, S.D.=0.4)* than affective words (M=0.4, S.D.=0.4*; t(108)=11.76 and 8.45, p<0.001, respectively). This pattern of word frequency is particularly interesting since previous studies (Melzack et al., 1982; Reading, 1982b) have suggested that the relatively greater use of sensory words tends to characterize acute types of pain.

B. Intensity Indices

Quantitative measures of pain were also derived from the MPQ. One of these measures, the Total Pain Rating Index (PRIT) (obtained from the sum of the rank values of all the adjectives chosen from the 20 subclasses of the MPQ) provides an indication of the overall intensity of the pain in abortion. Table 6 presents the mean pain rating indices for the sensory (PRIS), affective (PRIA), evaluative (PRIE), miscellaneous (PRIM) and total (PRIT) scores. Also displayed are the mean scores obtained on the Present Pain Intensity (PPI) scale of the MPQ, the Standard Pain Rating Scale (SPS) and the Visual Analogue Scale (PVAS). For clearer comparisons of values derived from different scales, all mean scores were also expressed in proportions (i.e., mean scores were divided by the maximum score possible per dimension, cf. Kremer, Atkinson & Ignelzi, 1982).

Product-moment correlation coefficients, shown in Table 7, revealed that the overall pain intensity scores from the MPQ, PVAS and SPS scales were highly (r=0.60 to 0.80) and significantly (p<0.001) correlated, indicating high reliability and consistency in the pain measures used. Furthermore, the correlations between the total PRI score and its majors components were very high, (r=0.67 to 0.93) and suggest that the PRIT is a good overall measure of pain. Yet, the separate MPQ component scores, although significantly intercorrelated (r=0.49 to 0.69), do not

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* Relative frequencies are reported here and refer to the mean number of words chosen divided by the maximum number possible per dimension.

TABLE 6

Means and Standard Deviations of the Pain Indices in Abortion: MPQ, Visual Analogue (PVAS) and Verbal Pain Rating (SPS) Scores Obtained from the Participants at Three Time Periods, and Their Proportional Expressions (N = 109)

Pain Rating	Scores		Proportional Score	
	Mean	s.d.	Mean	s.d.
In Abortion				
Index: Sensory (PRIS)	15.7	7.0	0.4	0.2
Affective (PRIA)	2.8	3.2	0.2	0.2
Evaluative (PRIE)	1.6	1.5	0.3	0.3
Miscellaneous (PRIM)	5.5	3.8	0.3	0.2
Total (PRIT)	25.7	13.4	0.3	0.2
Present Pain Intensity (PPI1)	2.6	1.2	0.5	0.3
Standard Verbal Pain Rating Scale (SPS1)	2.3	1.0	0.6	0.2
Visual Analogue Pain Scale (PVAS1)	5.6	2.6	0.6	0.2
15 Minutes After Abortion				
Standard Verbal Pain Rating Scale (SPS2)	1.3	1.0	0.3	0.2
Visual Analogue Pain Scale (PVAS2)	2.9	1.0	0.3	0.3
30 Minutes After Abortion				
Standard Verbal Pain Rating Scale (SPS3)	0.9	0.8	0.2	0.2
Visual Analogue Pain Scale (PVAS3)	2.0	2.0	0.2	0.2

TABLE 7

Product-Moment Correlations Among the Various MPQ, PVAS and SPS Pain Ratings, and Distress Rating (DVAS) Obtained from the Participants (N = 109)

	PRIS	PRIA	PRIE	PRIM	PRIT	PPI1	SPS1	PVAS1	DVAS
PRIS		.65***	.57***	.67***	.93***	.59***	.63***	.65***	.45***
PRIA			.52***	.69***	.83***	.45***	.46***	.53***	.52***
PRIE				.49***	.67***	.55***	.52***	.57***	.41***
PRIM					.85***	.52***	.52***	.47***	.45***
PRIT						.60***	.64***	.67***	.53***
PPI1							.80***	.71***	.52***
SPS1								.79***	.53***
PVAS1									.51***
DVAS									

Asterisks indicate the level of significance of the coefficients (based on two-tailed probability levels): *** $p < 0.001$

appear to be redundant measures of the pain experience. In fact, the various PRI scores revealed the same pattern of relative predominance of sensory words of higher intensity over affective or evaluative descriptors. Statistical tests that compared the proportional scores in each dimension revealed relatively higher sensory scores ($M=0.4$, $S.D.=0.2$) than affective ($M=0.2$, $S.D.=0.2$; $t(108)=10.40$, $p<.001$), evaluative ($M=0.3$, $S.D.=0.3$; $t(108)=2.14$, $p<0.05$), or miscellaneous ($M=0.3$, $S.D.=0.2$; $t(108)=3.22$, $p<0.01$) pain scores. As mentioned earlier, this pattern of verbal descriptors tends to be characteristic of many acute types of pain.

Patients' and Nurses' Pain Ratings

The observer's ratings and the participant's self-reports of pain were also compared for additional reliability checks of the pain assessment measures. Tables 8 and 9 present the mean pain scores on the PVAS and SPS scales obtained from the patients and the attending staff to describe pain intensity levels during the abortion procedure and approximately 15 minutes later. Significant decreases in pain were observed within this short recovery period (Table 8), supporting the general expectation that pain in first-trimester abortion is transient. The inter-rater correlation coefficients reported in Table 9 indicate that the ratings obtained from the patients and the observers were significantly correlated ($r=0.42$ to 0.62, $p<0.001$) and confirm that the selected measures yielded reliable estimates of the patients' discomfort and distress. Surprisingly, however, tests that compared the observers' and the patients' reports of pain revealed that, on the average, nurses tended to underestimate their patients' discomfort during the abortion procedure, but gave closer estimates of pain intensity 15 minutes after the intervention (when patients transferred to the recovery room), while their perception of the participants' emotional distress appeared quite accurate. Closer examination of the staff's ratings of pain revealed that the discrepancy between the patients' and nurses' ratings was

TABLE 8

Product-Moment Correlations and Comparisons of Mean Pain Ratings In Abortion and After 15 Minutes (N = 109)

Rating	In Abortion		15 Minutes Later		Product-Moment Correlation	Test Value t (108) =	p
	Mean	s.d.	Mean	s.d.			
Patients'							
SPS	2.3	1.0	1.3	1.0	.47***	-10.21	$p < 0.001$
VAS	5.6	2.1	2.9	2.5	.58***	-11.74	$p < 0.001$
Nurse-Observers'							
ObSPS	1.9	0.8	1.2	0.8	.60***	-11.06	$p < 0.001$
ObVAS	4.7	2.6	2.8	2.1	.62***	-10.52	$p < 0.001$

Asterisks indicate the level of significance of the coefficients: *** $p < 0.001$

TABLE 9

Product-Moment Correlations and Inter-Rater Comparisons of Means of Pain and Distress Ratings (N = 109)

Rating	Patients		Nurses		Product-Moment Correlation	Test Value t (108) =	p
	Mean	s.d.	Mean	s.d.			
Pain: Verbal Rating (SPS) and Visual Analogue (PVAS)							
SPS1	2.3	1.0	1.9	0.8	.50***	-4.07	$p < 0.001$
PVAS1	5.6	2.1	4.7	2.6	.62***	-4.37	$p < 0.001$
SPS2	1.3	1.0	1.2	0.8	.42***	-1.16	ns
PVAS2	2.8	2.1	2.9	2.5	.47***	0.45	ns
Distress: Visual Analogue (DVAS)							
DVAS	4.4	2.9	4.4	2.5	.55***	-0.21	ns

Asterisks indicate the level of significance of the coefficients: *** $p < 0.001$

greatest in cases of adolescents, who, in general, reported higher pain scores. Indeed, significant negative correlations, shown in Table 10, were found between the patients' age or education and most of their subjective pain ratings. Because of the substantial representation of adolescents (35%) who had not yet completed high school or junior college, age and education were highly correlated ($r=0.66$, $p<0.001$) in the present sample, and both variables were observed to be significantly associated with several pain measures. It became apparent thereafter that demographic variables deserved further study, and had to be taken into consideration in subsequent statistical analyses.

Taken together, these results provide support for the reliability of the pain measures used. Moreover, the similarity in results obtained from the QDSA and the French version of the MPQ (Appendix F) support the validity of the French MPQ used in this study.

Relative Intensity of Abortion Pain

Figure 1 permits a comparison of the intensity of abortion pain and other types of pain, using the total PRI scores, which provide an indication of the overall intensity of pain. The mean PRIT pain scores obtained from the total sample, and those reported by adolescent and adult participants are shown. Also displayed in this figure are the mean PRIT scores for several pain syndromes obtained in earlier studies (Melzack 1975; Melzack et al., 1981; Melzack, 1984). It can be seen that the average scores of pain in abortion ($M=25.7$, $S.D.=13.4$) were exceeded only by those of labour pain, amputation and causalgia. They were higher than those reported by patients with toothache, fracture pain or menstrual pain, and are as high as those obtained by patients with chronic low-back pain, cancer pain or phantom limb pain. Although there are obvious limitations to comparing pains of widely different origins and implications for the patients, it is nevertheless evident that abortion pain ranks

TABLE 10

Product-Moment Correlations Between the Various Measures of Pain and Distress, and the Demographic Variables to be Selected as Covariates in Multivariate Analyses (N = 109)

	Age (Years)	Education (Years)
Patients'		
SPS1	-.39***	-.34***
PVAS1	-.41***	-.33***
PPI1	-.25**	-.24**
PRIS	-.38***	-.31**
PRIA	-.37***	-.34***
PRIE	ns	ns
PRIM	-.34***	-.34***
PRIT	-.40***	-.35***
SPS2	-.40***	-.31**
PVAS2	-.39***	-.35***
SPS3	-.30**	-.29**
PVAS3	-.31**	-.29**
DVAS	-.23*	-.20*
Nurse-Observers'		
ObSPS1	ns	ns
ObPVAS1	-.20*	-.21*
ObSPS2	-.31**	-.21*
ObPVAS2	-.36***	-.28**
ObDVAS	ns	ns

Asterisks indicate the level of significance of the coefficients (two-tailed probability levels):
*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

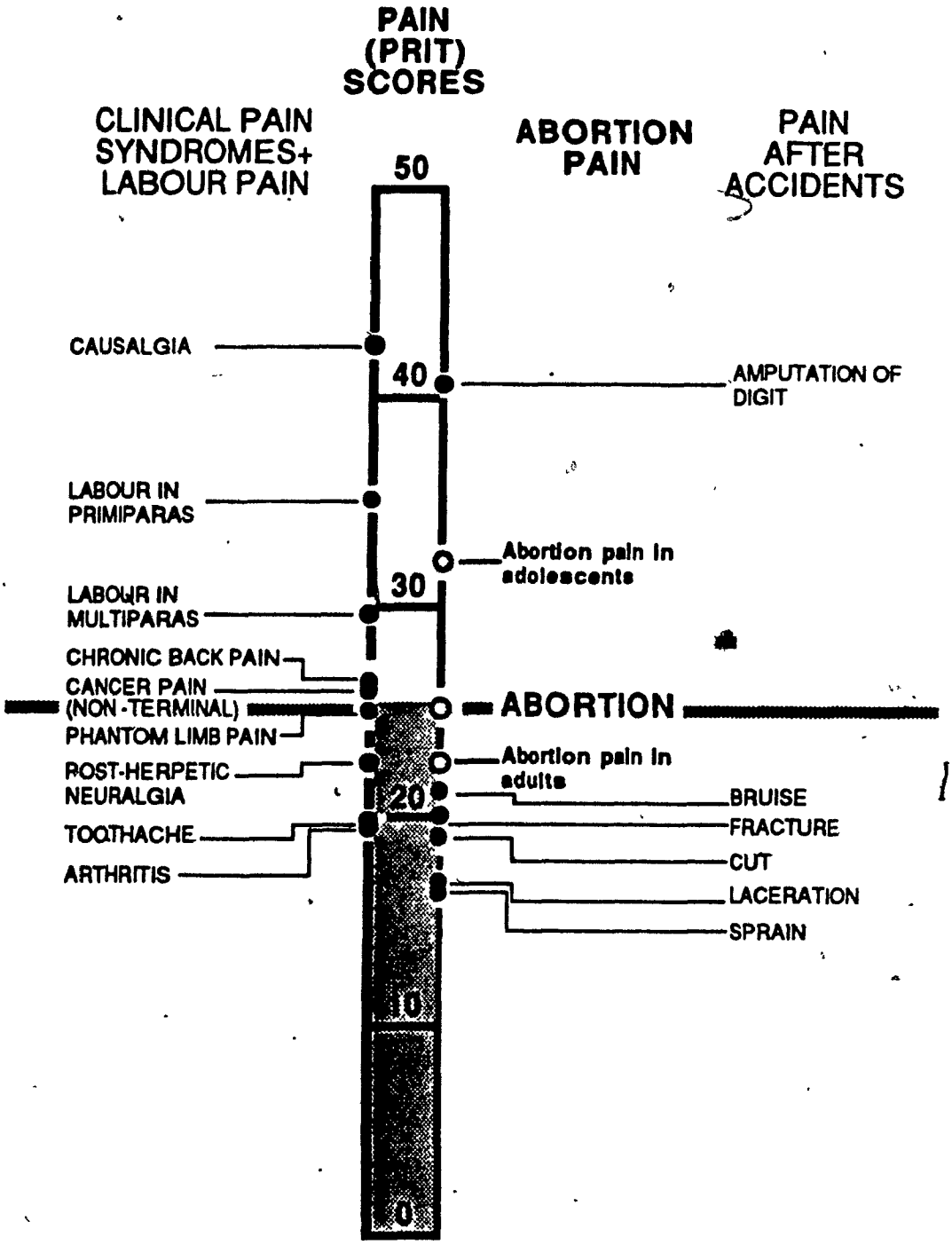

Figure 1: Comparison of the mean total pain scores (PRIT) in abortion obtained from adolescent and adult women, and other acute and chronic pain syndromes (Melzack, 1975 ; Melzack et al., 1981; Melzack, 1984)

among the moderately severe pains recorded with the MPQ. It is also clear from this figure that abortion was more painful for younger patients. Highly significant differences were found in PRIT scores reported by adolescents (13-17 yrs (n=38); M=32.0, S.D.=13.9) and adults (18-34 yrs (n=71); M=22.3, S.D.=11.9; $F(1,107)=14.79$, $p<0.001$). Significant differences ($p<.05$) were also found between adolescents and adults for each of the four MPQ classes of word descriptors of pain and for the unidimensional pain intensity scales (PVAS1, PPI1, SPS1).

While the average intensity of abortion pain for the total sample was moderately high, a wide range in pain scores was observed. Figure 2 shows the percentages of women whose pain scores fell into each of six intervals within the range of PRIT scores recorded in this study (3 to 60): 39% of women had scores in the lower range (3-20; no pain or mild pain), 23% had scores between 21-30 (moderate pain), 23% had scores of 31-40 (severe pain) and the remaining 15% had scores in the top third (41-60) of the range (extremely severe pain). These data are consistent with those obtained on a brief verbal pain rating scale (SPS1), in that 41% of subjects described their overall pain during the abortion procedure as "severe" or "unbearable". Moreover, the mean pain scores on this 5-point verbal scale are similar to those reported in a previous study of more than 2,000 women (Smith et al., 1979), a finding which indicates the validity of the present research. While the intensity of pain was found, on the average, to be higher for adolescents, the distribution of PRIT scores according to the patients' age group, shown in Figure 3, revealed that, while not all adolescents reported severe pain, they appeared nearly 2.4 times more likely than older patients to experience severe or extremely severe levels of pain in abortion.

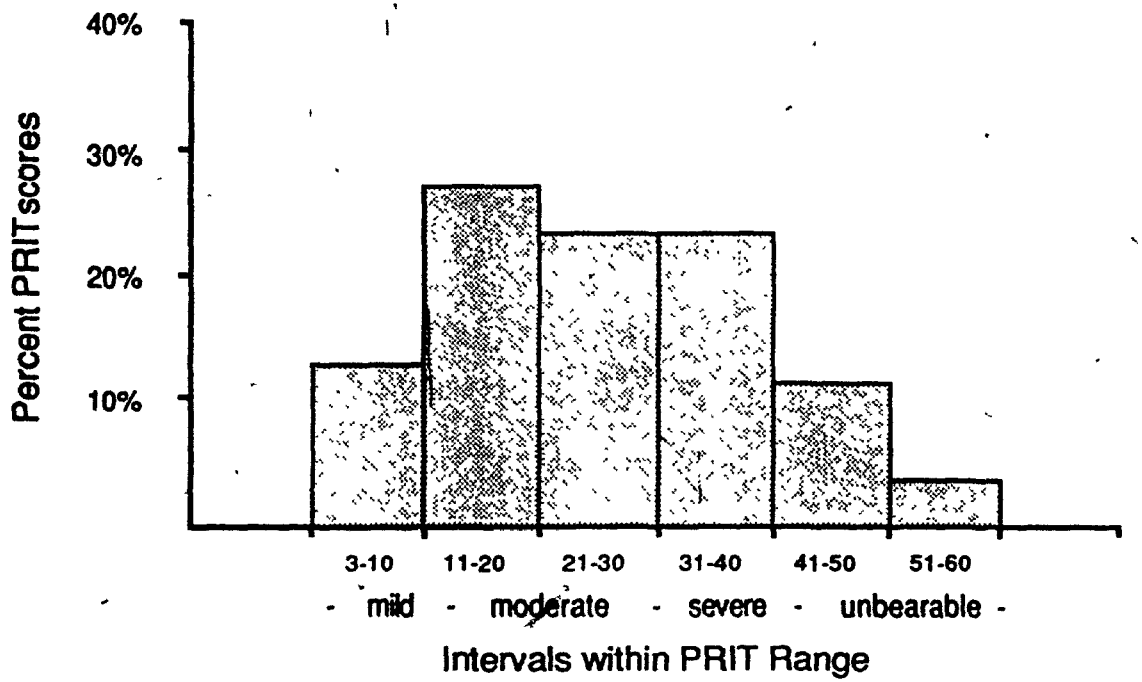

Figure 2: Distribution of the total pain rating index (PRIT) scores in six intervals of the range recorded in the present study from 109 women.

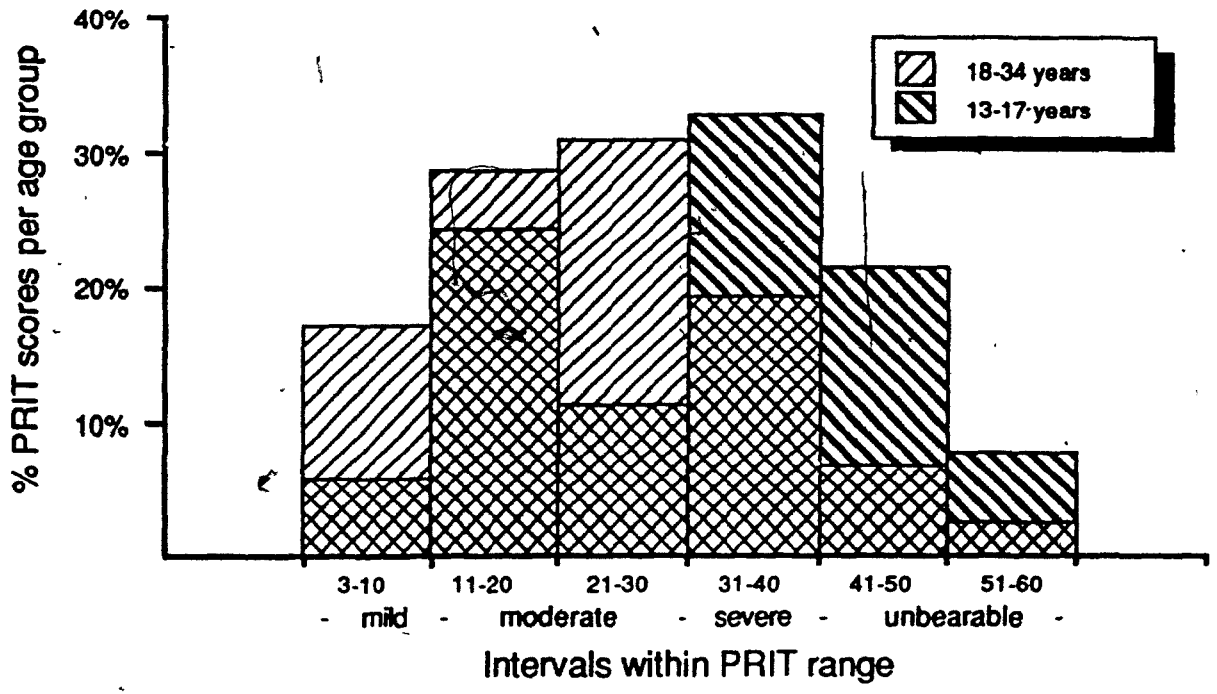

Figure 3: Distribution of total pain rating index (PRIT) scores in abortion obtained from 38 adolescents and 71 adult women.

Demographic and Other Antecedents

The significant correlations between age and several medical variables and the statistical differences between adolescents and adults on a number of medical antecedents provide some indication of the possible causes of the effect of age on pain, inasmuch as almost no significant relationships were found between age and affective or psychosocial characteristics before abortion. As expected, age was significantly and positively correlated with gravidity ($r=0.52$, $p<0.001$), parity ($r=0.41$, $p<0.001$), previous abortion ($r=0.44$, $p<0.001$), and was negatively correlated with dysmenorrhea ($r=-0.32$, $p<0.01$) (since it is most commonly reported by women in their late teens and early twenties). In addition, as often reported in other abortion researchs (Bracken et al., 1978; Cates, 1981), adolescents in this sample tended to have somewhat longer gestations at the time of abortion (M=9.0 vs 7.9 weeks, $F(1,107)= 6.60$, $p<0.05$), which entailed the use of more extensive dilatation and curettage ($X^2(1)=8.58$, $p<0.01$), but they also received slightly smaller doses of local anesthesia (M=181.3 vs 208.2 mg; $F(1,107)=14.87$, $p<0.001$), which remain, however, within recommended ranges (see Burnhill & Levin, 1976; Hern, 1984; Hodgson, 1981). Although antecedents of gynecological pain may have been expected to influence the experience of pain in abortion, correlations between gravidity, parity, previous abortion and pain scores did not reach statistical significance. Therefore, given the complex relationships between, on the one hand, demographic variables, medical antecedents and procedures used, and, on the other, the reports of pain, it became evident that the best strategy to understand the relative contribution of medical, social and psychological factors in abortion pain was to use multivariate designs and to select age and education as covariates. The results of the hierarchical regression analyses performed to determine the predictors of pain are presented below. Before

progressing to these analyses, however, a brief description of the psychosocial, emotional and cognitive characteristics of the participants needs to be given.

2. Affective and Psychosocial Characteristics Before Abortion

The results in Table 11 show that, while the decision to seek an abortion was not an easy one (nearly two out of three women reported moderate to high levels of preoccupation and difficulty in taking the decision), most women had resolved their ambivalence by the time the procedure took place (only 26% remained moderately hesitant on the day of the intervention). In addition, the patients were somewhat worried about the possibility of pain and their ability to tolerate it. This was confirmed by the ratings regarding the importance of four issues which may have troubled the subjects throughout the waiting period: the average rank-value scores indicated that the participants generally expressed concerns over 1) the risk of pain, 2) or of medical complications, followed by 3) moral issues or 4) social disapproval (Friedman rank test: $X^2r(3)=56.41$, $p<0.001$, in Ferguson, 1981, pp. 410-412).

Scores on the standard psychological tests revealed that pre-abortion situational anxiety (STAIS-1) (M=48.2, S.D.=9.2) and depression (BDI-1) (M=12.9, S.D.=8.8) were moderately elevated. The mean anxiety scores were only slightly higher than those reported in other medical and pre-operative populations (Reading, 1982c; Spielberger et al., 1970, 1973; Taenzer, 1983). The depression scores, however, appeared uncommonly high in this group; in fact, scores in this range generally indicate levels of mild clinical depression (Beck et al., 1961; Gauthier et al., 1982). These findings therefore suggest that the period between the suspicion of pregnancy and the abortion is for many women an emotionally trying time. A considerable proportion of women, indeed, expressed serious distress: 32% responded

TABLE 11

Descriptive Statistics on Psychosocial, Affective and Cognitive Variables Collected Before Abortion (N = 109)

Psychosocial

Presence of a companion.	n	%	In operating room	n	%
Partner	50	45.9	Partner in	31	28.4
Friend	29	26.6	Friend in	20	18.4
Family member	11	10.1	Relative in	4	3.7
Professional	3	2.8	Professional in	1	0.9
Any company	93	85.3	Companion in room	53	48.6
Alone	16	14.7			

Request for Termination	n	%		n	%
Socioeconomic	76	69.7	Young age	35	32.1
Interpersonal	15	13.8	Completed family	7	6.4
Studies/work	58	53.2	Health	1	0.9
No desire	43	39.5	Rape	4	3.7

Decision Process:	n	%		n	%
Alone	65	60.0	With friend	9	8.3
Joint (with partner)	28	25.7	With relative	3	2.8
			With professional	4	3.7

Affective/Cognitive	Mean	s.d.	Range	Norms[c]
Preoccupation[a]	6.3	2.6	0.6 - 10.0	
Ambivalence in decision[a]	3.9	3.0	0.0 - 10.0	
Hesitations present[a]	2.0	2.3	0.0 - 9.2	
Fear of intervention[a]	5.5	2.1	1.1 - 10.0	
Expectancy of pain[a]	4.6	2.0	0.7 - 9.4	
Tolerance to pain[a]	5.5	2.4	0.5 - 10.0	
Issues: - Pain[b]	1.9	1.0	1.0 - 4.0	
- Medical[b]	2.2	0.9	1.0 - 4.0	
- Moral[b]	2.4	1.1	1.0 - 4.0	
- Social[b]	3.3	1.0	1.0 - 4.0	
State-Anxiety (STAIS-1)	48.2	9.2	27 - 68	39.4 ± 8.6 (42.4 ± 13.8)
Depression (BDI-1)	12.9	8.8	0 - 41	6.4 ± 3.5
Trait-Anxiety (STAIT-2)[d]	37.6	11.3	20 - 69	38.2 ± 8.2 (41.9 ± 12.7)

Note a: Ratings obtained on VAS scales with values between 0 and 10.

Note b: Rank-order ratings with values between 1 and 4 and inversely-coded (smaller values depict greater order of importance).

Note c: Normative data published in Spielberger et al.,(1970) for female college students (and medical populations), and in Gauthier et al.,(1984).

Note d: Trait-Anxiety (STAIT-2) collected at follow-up (n = 87)

that they had important moral conflicts or concerns about significant others' judgement, 27% obtained scores on the STAIS-1 that were indicative of severe tension and apprehension (Spielberger et al., 1970), and 20% had scores on the BDI-1 suggestive of moderate to severe levels of clinical depression (Gauthier et al., 1982).

A. Relationships among Pre-Abortion Affective, Psychosocial, Demographic and Medical Variables.

To explore the relationships between the various antecedent emotional, cognitive and social measures, product-moment correlations were calculated and were found to be significant and internally consistent. Table 12 reveals that women who expressed greater ambivalence, hesitation, fear and expectation of pain tended to report higher levels of pre-abortion anxiety, depression and trait-anxiety. The correlations also indicated that ambivalence and moral conflicts were significantly associated ($r=-0.35^*$, $p<0.001$). Regarding the decision-making process, group comparisons of subjects who ackowledged that they involved others in their decision and those who did not, further revealed that women who reached their decision alone reported less ambivalence ($M=3.1$ vs 5.1, on a 10-point scale; $F(1,107)=13.1$, $p<0.001$) and hesitation ($M=1.4$ vs 2.8, on a 10-point scale; $F(1,107)=10.0$, $p<0.005$) and fewer moral conflicts ($M=2.8^*$ vs 2.1^*, on a 4-point rank-order scale; $F(1,107)=10.32$, $p<0.005$) than those who sought the counsel of others. Conversely, subjects who came accompanied by a relative tended to report more ambivalence ($r=0.30$, $p<0.001$). Interestingly, women who reported a lower tolerance to pain tended to ask their companion to be with them in the operating room ($r=0.27$, $p<0.01$).

The correlations between background variables and pre-abortion affective

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* Issues of concern are inversely-coded variables.

TABLE 12 a

Product-Moment Correlations Among Affective and Psychosocial Variables Assessed Before Abortion (N = 109)

	AFFECT			DECISION				EXPECTATION			ISSUES OF CONCERN[b]			
	STAIS-1	STAIT-2[a]	BDI-1	Preoccupation	Ambivalence in Decision	Decision With Others	Hesitation Present	Fear	Expentancy of Pain	Tolerance to Pain	Pain	Medical	Moral	Social
Affect														
STAIS-1		.33***	.48***	.27*	.31**		.41***	.51***	.34***					
STAIT-2			.57***					.29**			.26[b]**			
BDI-1				.34***	.31**			.33***	.34***					
Decision														
Preoccupation								.25**						
Ambivalence						.33***	.58***						-.35[b]**	
Decision With Others							.29**						-.30[b]**	
Hesitation Present													-.29[b]**	
Expectation														
Fear									.32**					
Expectancy of Pain										-.26**	-.30[b]**			
Tolerance to Pain														
Issues														
Pain[b]													-.45***	-.25**
Medical[b]													-.31**	-.32**
Moral[b]														-.41***
Social[b]														

Asterisks indicate the level of significance (based on two-tailed probability): *** $p < 0.001$; ** $p < 0.01$.
Blanks represent non-significant coefficients or coefficients less than .25.
Note a: STAIT-2 collected at follow-up with mean substitution of missing values.
Note b: Issues of concern are inversely-coded variables (e.g. positive signs indicate inverse relationships between variables).

TABLE 12 b

Product-Moment Correlations Among Affective and Psychological Variables Assessed Before Abortion (N = 109)

	COMPANY				REASONS			
	Partner	Friend	Relative	In Room	Socioeconomic	Interpersonal	Studies	No Desire
Affect								
STAIS-1							.28**	
STAIT-2[a]								
BDI-1								
Decision								
Preoccupation								
Ambivalence			.30**					
Decision With Others								
Hesitation Present			.30**					
Expectantion								
Fear								
Expectancy of Pain								
Tolerance to Pain			-.27**					
Issues[b]								
Pain[b]								
Medical[b]								
Moral[b]								
Social[b]								
Company								
Partner				.35***				
Friend				.39***				
Relative								
In Room								
Reasons								
Socioeconomic					-.33**			
Interpersonal								
Studies								
No Desire								

Asterisks indicate the level of significance (based on two-tailed probability): *** $p < 0.001$; ** $p < 0.01$.
Blanks represent non-significant correlation coefficients or coefficients less than .25.
Note a: STAIT-2 collected at follow-up with mean substitution of missing values.
Note b: Issues of concern are inversely-coded variables.

TABLE 13

Product-Moment Correlations Between Demographic, Medical Variables and Affective and Psychosocial Features Before Abortion (N = 109)

	DEMOGRAPHIC		MEDICAL				
	Age	Education	Parity	Abortion	Gestational Age	Dysmenorrhea	Retroversed Uterus
Demographic and Medical							
Age							
Education	.66***						
Parity	.41***						
Abortion	.44***						
Gestational Age							
Dysmenorrhea	-.32**						
Retroversed Uterus							
Affective and Psychosocial							
STAIS-1							
STAIT-2[a]							
BDI-1							
Decision							
Preoccupation							
Ambivalence							
Decision With Others		-.28**					
Hesitation Present							
Expectation							
Fear							
Expectancy of Pain							
Tolerance to Pain							
Issues							
Pain[b]							
Medical[b]							
Moral[b]							
Social[b]							
Company							
Partner							
Friend							
Relative							
In Room							
Reasons							
Socioeconomic							
Interpersonal							
Studies	-.38**		-.25**				
No Desire							

Asterisks indicate the level of significance (based on two-tailed probability): *** $p < 0.001$; ** $p < 0.01$. Blanks represent non-significant coefficients or with values less than .25.

Note a: STAIT-2 collected at follow-up with mean substitution of missing values.

Note b: Issues of concern are inversely-coded variables.

and psychosocial measures were also examined (Table 13). The striking feature of this pattern of relationships is the virtual absence of significant correlations with the variables that are strongly associated with pain measures, such as age and education. To further explore how adolescents differed from adult participants in their emotional and cognitive sets before abortion, group comparisons were calculated. No significant differences were found between the two age groups on most pre-abortion psychosocial or affective measures, with a few interesting exceptions. Firstly, adolescents more frequently requested abortion on grounds of age (84.2% vs 4.2%; $X^2(1)=72.64$, $p<0.001$) or studies (76.3% vs 40.8%; $X^2(1)=12.51$, $p<0.001$), had sought help from people other than their boyfriend (29.2% vs 7.8%; $X^2(2)=11.3$, $p<0.01$) and were less often accompanied by their partner on the day of the intervention (31.6% vs 53.5%; $X^2(2)=8.31$, $p<0.05$) than adult women. Secondly, adolescents expressed slightly more hesitation (M=2.7 vs 1.6 on a 10-point scale; $F(1,107)=5.6$, $p<0.05$) and more anxiety (STAIS-1), although this latter difference was only marginally significant (M=50.5 vs 47.0; $F(1,107)=3.7$, $p=0.06$). While these group differences would appear to suggest that maturity may somehow facilitate the resolution of ambivalent feelings and the mobilization of the partner's support, the correlations largely indicate, however, that demographic and emotional variables were independent features.

B. Predictors of Depression and Anxiety Before Abortion

In order to further determine the sources of the inter-individual variability in pre-abortion depression and anxiety reports, multiple stepwise regressions were calculated (Cohen & Cohen, 1975; Nie, Hull, Jenkins, Streinbrenner & Brent, 1975). The inclusion of predictor variables was based on their univariate correlation coefficients (all statistical tests were two-tailed). The problem of shared variance

among measures was approached by retaining only those variables which showed a minimum F value of 2.0 for the test of the partial correlation coefficients. The results of these analyses, performed to ascertain the relative contribution of demographic, psychosocial and medical variables to depression (BDI-1) and anxiety (STAIS-1) before abortion, are presented in Tables 14 and 15. Significant predictions were obtained, accounting for an average of 53% of the variance in these affective scores. The important feature of the results is that the reports of depression and anxiety before abortion appear to be determined by a variety of emotional, cognitive and social variables. Patients who experienced chronic as well as situational anxiety, who were preoccupied, ambivalent and had greater expectancies of pain, and who lacked the support of significant others or the company of a partner, were also more likely to show depressive symptoms. On the other hand, women who expressed greater fear, hesitation and who were still students, tended to report more anxiety before the intervention.

In summary, the results presented in this section are consistent with previous reports that indicated that most women experience an abortion as a difficult but necessary alternative to an unwanted pregnancy (Freeman, 1977, 1978; Freeman et al., 1980; Friedlander et al., 1984). They also indicate that women's reactions to an abortion are complex and would appear to depend on their affective and cognitive sets (e.g., ambivalence, fear, expectancy of pain) as well as their psychosocial situation (e.g., support of a partner or significant others).

3. Predictors of Pain and Distress in Abortion

In the attempt to determine the sources of inter-individual variability in outcome measures of abortion, the relationships between the patients' demographic,

TABLE 14

Results of the Multiple Stepwise Regression Analysis to Determine the Statistical Predictors of Depression Before Abortion (BDI-1) (N = 109).

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Trait Anxiety (STAIT-2)[a]	.57	.33	.33	1,107	51.72	.000	.39	32.76	.0000
State Anxiety (STAIS-1)	.48	.42	.09	2,106	38.05	.000	.16	5.35	.02
Preoccupation in Week prior to Abortion	.34	.46	.04	3,105	29.79	.000	.19	7.46	.007
Expectancy of Pain	.34	.48	.02	4,104	24.34	.000	.17	6.26	.01
Concern about Other's Judgement[b]	-.06[b]	.50	.02	5,103	20.48	.000	-.12[b]	3.26	ns[c]
Ambivalence in Decision	.31	.52	.02	6,102	18.04	.000	.15	4.73	.03
Presence of Partner	-.12	.53	.01	7,101	16.21	.000	-.12	3.06	ns[c]

Note a: STAIT-2 collected at follow-up with mean substitution of missing values.

Note b: Issues of concern are inversely-coded variables.

Note c: Tests of the partial correlation coefficients revealed marginally significant contributions to the prediction ($p = 0.07$ and 0.08, respectively).

N.B. The regression calculated without STAI measures revealed that 33% of the variance in BDI-1 scores was accounted for by the following variables: Expectancy of Pain (partial $r = .24$, $p < 0.005$), Preoccupation (partial $r = .23$, $p < 0.01$), Ambivalence (partial $r = .25$, $p < 0.005$) and the Absence of the Partner (partial $r = -.20$, $p < 0.05$) (partial r = partial correlation coefficient).

TABLE 15

Results of the Multiple Stepwise Regression Analysis to Determine the Statistical Predictors of State-Anxiety Before Abortion (STAIS-1) (N = 109)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Fear of Intervention	.51	.26	.26	1,107	38.43	.000	.29	19.17	.000
Depression (BDI-1)	.48	.37	.11	2,106	31.05	.000	.18	7.50	.007
Hesitation Present	.41	.44	.07	3,105	27.79	.000	.28	17.54	.000
Studies	.28	.52	.08	4,104	27.91	.000	.29	18.35	.000
Expectancy of Pain	.34	.53	.01	5,103	23.21	.000	.11	2.81	ns
Preoccupation in Week Prior to Abortion	.27	.54	.01	6,102	19.95	.000	.10	2.24	ns

N.B. The regression calculated without BDI-1 measures revealed that 50% of the variance in STAIS-1 scores was accounted for by the following variables: Fear (partial r = .33, $p<0.001$), Hesitation (partial r = .30, $p<0.001$), Studies (partial r = .30, $p<0.001$) or Nulliparity (partial r = -.12, p = ns) (partial r = partial correlation coefficient).

medical and psychosocial characteristics and pain, distress and treatment evaluation reports were assessed. The product-moment correlation matrices and the results of hierarchical stepwise regression analyses were examined in order to ascertain the statistically reliable predictors of pain and distress during abortion.

A. Relationships between Outcome Measures, and Demographic, Medical and Psychosocial Variables

The product-moment correlation coefficients between pain and distress reports and demographic, medical and psychosocial variables are displayed in Tables 16 to 18. These analyses show that several variables such as the patient's age and education and medical characteristics, such as menstrual problems, retroversed uterus and the smaller doses of anesthetic injected, were significantly correlated with a number of pain indices, while virtually no medical variable were associated with distress measures. Furthermore, significant intercorrelations were observed between the patient's affective states and issues of concern before abortion, and pain and distress ratings during abortion. Trait- and State-Anxiety (STAIS-1, STAIT-2), Depression (BDI-1) scores, and ratings of moral conflicts, ambivalence and fear were associated with greater pain and distress scores. However, the patient's expectancy and concern about pain were either unrelated or associated with lower pain reports, while lower perceived ability to tolerate pain was correlated with several pain and distress measures.

These results are important in that: 1) they tend to support the validity of the outcome measures used in this research, which evaluated pain and distress as separate dimensions, inasmuch as medical features were correlated with pain indices and not with distress measures; 2) they identify at least three medical features that contribute to greater physical discomfort during the intervention or after the

TABLE 16

Product-Moment Correlations Between the Participants' Pain and Distress Ratings and Demographic, Medical Antecedents, Procedures and Incidents in Abortion (N = 109)

	Pain Rating										Distress Rating
	SPS1	PVAS1	PPI1	PRIS	PRIA	PRIE	PRIM	PRIT	PVAS2	PVAS3	DVAS
Demographic											
Age	.39***	-.41***	-.25**	-.38***	-.37***		-.34***	-.40***	-.39***	-.31***	
Education	-.34***	-.33***		-.31**	-.34**		-.34***	-.35***	-.35***	-.29***	
Medical Antecedent											
Parity											
Abortion											
Gestational Age											
Dysmenorrhea	.28**	.31**	.32**	.26**				.25**	.27**	.27**	
Retroversed Uterus		.26**									
Procedures											
Aspiration & Curettage											
Additional Aspiration Anesthetic Dosage						-.26**					
Incident											
Intolerance					.32**	.32**	.37***	.34***			
Vagal Shock		.26**		.26**			.25**	.28**			

Asterisks indicate the level of significance of coefficients (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.001$. Blanks represent non-significant coefficients or with values less than .25.

TABLE 17

Product-Moment Correlations Between the Participants' Pain and Distress Ratings and Affective and Psychosocial Variables Assessed Before Abortion (N = 109)

	Pain Rating										Distress Rating
	SPS1	PVAS1	PPI1	PRIS	PRIA	PRIE	PRIM	PRIT	PVAS2	PVAS3	DVAS
Affect											
STAIS-1	.29**	.28**		.25**	.29**		.25**	.30**			.47***
STAIT-2[a]	.31**			.31**	.29**		.32**	.34***			.36***
BDI-1			.29**	.36***	.37***	.26**	.38***	.41***			.41***
Decision											
Preoccupation											
Ambivalence					.25**						.41***
Hesitation					.37**						.35***
Decision With Others	.25*				.27**						.28**
Expectation											
Fear				.26**				.26**			.41***
Expectancy of Pain											
Tolerance to Pain											
Issues											
Pain[b]									.25[b]*		
Medical[b]			-.28[b]**						-.31[b]**		-.29[b]**
Moral[b]											
Social[b]											
Company											
Partner											
Friend											
Relative											
In Room										.28**	
Reasons											
Socioeconomic											
Interpersonal											
Studies	.24*	.25**									
No desire											

Asterisks indicate the level of significance (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.01$. Blanks represent non-significant coefficients or with values less than .25.

Note a: STAIT-2 collected at follow-up with mean substitution of missing values.

Note b: Issues of concern are inversely-coded variables.

TABLE 18

Product-Moment Correlations Between the Nurse-Observers' Ratings of Pain and Distress and Demographic, Medical, Affective and Psychological Variables (N = 109)

	Pain Rating				Distress Rating
	ObSPS1	ObPVAS1	ObSPS2	ObPVAS2	ObDVAS
Demographic					
Age			-.31**	-.36***	
Education				-.28***	
Medical Antecedent					
Parity					
Abortion					
Gestational Age					
Dysmenorrhea			.30**		
Retroversed Uterus					
Procedure					
Aspiration and Curettage					
Additional Aspiration					
Anesthetic Dosage					
Affect					
STAIS-1					.37***
STAIT-2[a]					
BDI-1					.26**
Decision					
Preoccupation					
Ambivalence					
Hesitation					.38***
Decision With Others					.40***
Expectation					
Fear					.31**
Expectancy of Pain					
Tolerance to Pain					
Issues					
Pain[b]			.27[b]**	.26[b]**	
Medical[b]					
Moral[b]					-.40[b]***
Social[b]					
Company					
Partner					
Friend					
Relative					
In Room					
Reasons					
Socioeconomic					
Interpersonal					
Studies					
No Desire					

Asterisks indicate the level of significance (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.01$. Blanks represent non-significant coefficients or with values less than .25.

Note a: STAIT-2 collected at follow-up with mean substitution of missing values.

Note b: Issues of concern are inversely-coded variables.

procedure is completed; 3) the significant intercorrelations among anxiety, depression, ambivalence, fear and moral concerns and outcome measures suggest that these emotional difficulties covary with, mediate or contribute to higher pain scores, and particularly to affective indices of pain (PRIA) and distress ratings.

The results of hierachical stepwise regression analyses were also examined in the attempt to determine the relative contribution of biographical, affective, psychosocial and medical variables in pain and distress reports in first-trimester abortion. To perform these analyses, a limited number of variables were selected.

i) Selection of independent variables: A total of twenty-two biographical, affective, psychosocial and medical variables, listed in Table 19 were chosen to enter into the multivariate regression analyses. Three main criteria were used to select these variables: 1) Categorical variables were omitted if they applied to less than ten percent of the respondents; 2) Redundant variables were excluded, giving priority to continuous variables over classification variables, whenever possible; 3) Variables that showed significant univariate correlations with two or more pain or distress measures were included in the analyses. Other variables that were of special theoretical or practical interest (e.g., presence of partner, company in operating room, gestational age, retroversion of uterus, tolerance and expectancy of pain) were also included, even though they did not meet this criterion.

ii) Covariate Selection: The correlation matrices presented earlier (see Tables 10, 12 and 13) have revealed that the patient's age and education were significantly correlated, on the one hand, with most pain and distress indices, and, on the other, with relevant medical features (e.g., dysmenorrhea, parity, anesthetic doses). In the attempt to control for their potentially confounding effects, these biographical variables were used as covariates, so that the relative contribution of

TABLE 19

List of the Selected Demographic, Medical, Psychosocial and Affective Variables to be Included in the Hierarchical Stepwise Regression Analyses for Pain and Distress in Abortion

Demographic (covariates)

- Age
- Education

Medical

- Gestational Age
- Parity
- Abortion
- Dysmenorrhea
- Retroversed Uterus
- Doses of Local Anesthetic

Psychosocial

- Reasons for abortion:
  - Interpersonal problems
  - Studies and Work plans
- Presence of:
  - Partner
  - Friend
  - Family
  - Company in operating room

Affective and Cognitive

- Ambivalence:
  - Difficulty of decision
  - Hesitation present
- Issues of concern:
  - Moral dilemma
  - Social (others' judgement)
- Expectancy of Pain
- Perceived Tolerance to Pain
- Fear of Intervention
- Anxiety (STAIS-1, STAIT-2)
- Depression (BDI-1)

psychosocial, affective and medical variables could be explored above and beyond that afforded by demographic information.

B. Statistical Predictors of Pain in Abortion and Recovery

A series of hierarchical stepwise regressions were calculated for the major indices of the McGill Pain Questionnaire (MPQ) and the Visual Analogue Scales (PVAS) in order to determine the statistically reliable predictors of pain during abortion and the recovery period. Covariates entered directly into the design (Cohen & Cohen, 1975; Nie et al., 1975) and the inclusion of predictor variables were based on their univariate correlation coefficients (all statistical tests were two-tailed). The problem of shared variance among measures was approached by retaining only those variables which showed a minimum F value of 2.0 for the tests of the partial regression coefficients, and which cumulatively yielded a significant overall F. The results of the hierarchical stepwise regression analyses for each pain measure are presented in Tables 20 to 26, and have been reported in terms of the F ratios derived from their associated increments in R square and in terms of the significance of partial correlation coefficients. The results of the hierarchical regressions calculated for all other patients' and nurses' measures of pain and distress are reported in Appendix G (Tables 39-G to 47-G). For greater clarity, these were not included in the present section as they revealed largely similar patterns of statistical predictors.

Perhaps the most striking feature of the results displayed in Tables 20 to 26 is that significant predictions were obtained for all pain measures: an average of 37% of the variance in overall pain intensity measures was explained, 32% for the major MPQ dimensions and 23% for the pain scores collected during the recovery period.

TABLE 20

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Sensory Pain Rating (PRIS)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.31	.15	.15	2,106	9.51	.000	-.08	.09	ns
Age	-.38						-.22	7.61	.01
Depression (BDI-1)	.34	.26	.11	3,105	12.51	.000	.31	14.26	.000
Retroversed Uterus	.24	.30	.03	4,104	10.99	.000	.16	3.92	.05
Gestational Age	-.11	.32	.02	5,103	9.57	.000	-.14	3.04	ns[a]

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.08$).

TABLE 21

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Affective Pain Rating (PRIA)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.34	.15	.15	2,106	9.76	.000	-.15	3.43	ns[a]
Age	-.38						-.15	3.62	.05
Depression (BDI-1)	.37	.27	.12	3,105	13.22	.000	.33	16.30	.000
Moral Dilemma[b]	-.24[b]	.31	.04	4,104	11.55	.000	-.18[b]	5.05	.02
Interpersonal Problems	.12	.33	.02	5,103	10.22	.000	.16	3.72	.05

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.06$).

Note b: Issues of concern are inversely-coded variables.

TABLE 22

Results of the Hierarchical Stepwise Multiple Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Miscellaneous Pain Rating (PRIM)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.34	.14	.14	2,106	8.40	.000	-.24	8.42	.004
Age	-.33						-.05	0.33	ns
Depression (BDI-1)	.38	.27	.13	3,105	12.75	.000	.35	18.62	.000
Interpersonal Problems	.13	.30	.03	4,104	11.08	.000	.18	4.72	.03
Concern About Others' Judgement	-.20[b]	.32	.02	5,103	9.76	.000	-.15[b]	3.44	ns[a]

Note a: The test of partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.06$).

Note b: Issues of concern are inversely-coded variables.

TABLE 23

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Total Pain Rating (PRIT)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.35	.17	.17	2,106	10.82	.000	-.15	3.89	.05
Age	-.40						-.19	5.66	.02
Depression (BDI-1)	.41	.32	.15	3,105	16.42	.000	.36	21.35	.000
Interpersonal Problems	.11	.34	.03	4,104	13.65	.000	.16	4.04	.05
Gestational Age	-.10	.37	.02	5,103	11.95	.000	-.13	2.87	ns[a]
Retroversed Uterus	.20	.38	.01	6,102	10.46	.000	.12	2.28	ns

Note a: The test of the partial correlation coefficient revealed significant contribution to the prediction ($p = 0.08$)

TABLE 24

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Visual Analogue Pain Score (PVAS1)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.33	.18	.18	2,106	11.39	.000	-.06	0.70	ns
Age	-.41						-.19	5.91	.02
State-Anxiety (STAIS-1)	.28	.24	.06	3,105	10.74	.000	.20	6.56	.01
Retroversed Uterus	.26	.28	.04	4,104	10.06	.000	.20	6.58	.03
Presence of a Relative	-.10	.31	.03	5,103	9.17	.000	-.17	4.45	.03
Moral Dilemma[b]	-.23[b]	.34	.03	6,102	8.82	.000	-.18[b]	5.17	.02
Dysmenorrhea	.31	.36	.02	7,101	8.26	.000	.15	3.55	ns[a]

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.06$).

Note b: Issues of concern are inversely-coded variables.

TABLE 25

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain Fifteen Minutes After Abortion: Visual Analogue Pain Score (PVAS2)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.35	.17	.17	2,106	10.73	.000	-.10	1.48	ns
Age	-.39						-.19	5.52	.02
Moral Dilemma[b]	-.31[b]	.24	.07	3,105	11.20	.000	-.29[b]	12.33	.001
Presence of a Relative	-.12	.29	.05	4,104	10.56	.000	-.20	5.95	.02
Dysmenorrhea	.27	.30	.01	5,103	9.02	.000	.12	2.35	ns

Note b: Issues of concern are inversely-coded variables.

TABLE 26

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain Thirty Minutes After Abortion: Visual Analogue Pain Score (PVAS3)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.29	.11	.11	2,106	6.41	.002	-.11	1.50	ns
Age	-.31						-.08	0.78	ns
Dysmenorrhea	.27	.14	.03	3,105	5.68	.001	.21	4.64	.03
Gestational Age	.19	.16	.02	4,104	4.98	.001	.16	2.60	ns

The significant improvements in explained variance with multivariate procedures clearly indicate that the association of demographic, affective, psychosocial and medical information explains a greater portion of the variability in pain scores than univariate analyses. An average of three variables emerged as significant predictors of pain, which indicated that biographical, medical and psychological factors in combination generally influence the perception of pain in abortion.

The first feature revealed by the results is the importance of age or education in accounting for the variability in pain reports. These demographic variables explained nearly 16% of the variance in self-reported overall pain intensity measures (PVAS1, PRIT) and in MPQ subscores (PRIS, PRIA, PRIM),. Age and education also individually made significant contributions to the prediction of pain scores (PRIA, PRIT), suggesting that older and more educated subjects experienced less pain during abortion. Demographic variables also accounted for an average of 14% of the variance in pain scores after abortion (PVAS2, PVAS3).

A second feature of these results is the pervasive influence of pre-abortion depression and anxiety on pain reports. Depression (BDI-1) scores, or highly correlated State-Anxiety, emerged as significant predictors of most abortion pain measures. Although the relationships between pain perception, distress, fear and anxiety have traditionally been stressed in the literature on acute pain, the role of depression has been scarcely mentioned. The present results indicate that depression accounted for an additional 13% of the variance in pain intensity ratings and MPQ scores, while state-anxiety accounted for an additional 6% of the variance in one overall pain intensity measure (PVAS1). Statistical tests that looked at the role of depth of clinical depression in pain scores (using the classification of BDI scores proposed by Beck & Beck (1962) and Gauthier et al., (1982): 0-10= none; 11-18= mild; 19-26= moderate; 27 and over= severe) revealed that participants who reported

moderate or severe levels of depression before their abortion (n=22) had significantly higher pain and distress scores than those who acknowledged mild or no depression. Other psychosocial variables which were correlated with depression and anxiety measures, such as ambivalence, expectancy of pain, or fear ratings, did not emerge in most equations, possibly because they did not individually add to the prediction of pain scores once the influence of anxiety and depression had been accounted for. Moral conflicts, concerns about significant others' judgement and interpersonal problems, however, contributed to small increments in the prediction of pain ratings, together accounting for a further 4% of the variance in five out of seven measures of pain. Interestingly, the company of a partner, friend or relative, or the presence of the companion in the operating room did not contribute significantly to most pain reports.

The final feature of the results is the small but significant additional contributions of medical characteristics. The hierarchical analyses revealed that the retroversed position of the uterus, menstrual problems and a shorter gestation explained a further portion of the inter-individual variability in overall pain measures and sensory pain scores (together accounting for an additional 4% of the variance in five measures of pain during and after abortion). Closer examination of these relationships revealed that terminations of early gestations were associated with more curettage following suction (possibly to ensure that the uterus had been adequately evacuated, especially when small volumes of material were aspirated) ($r=0.41$, $p<0.001$), and nulliparity ($r=-0.25$, $p<0.01$). These findings thus suggest 1) that the cannula and curette may scrape or stretch the lining of a flexed uterus more than a normal one, and therefore generate more nociceptive stimulation; 2) that women who have dysmenorrhea experience more pain during abortion and after abortion; 3) that abortion carried out in the early stages of pregnancy may be more

painful, perhaps especially in nulliparous women, and in patients who had wider mechanical dilatation of the cervix and curettage.

Taken together, the results indicate that age, correlated with several medical features, accounted for a considerable portion of the variance in pain, and that emotional antecedents, (i.e., depression, anxiety, moral conflicts, fear of significant others' disapproval) further contributed to higher pain scores. Finally, medical variables, such as the retroversion of the uterus, menstrual problems and the gestational age also made significant contributions to the prediction of pain reports.

C. Statistical Predictors of Distress in Abortion

Hierarchical stepwise regressions were also calculated to determine the statistical predictors of the participants' distress ratings (DVAS). These analyses were performed as described previously, with covariates entered first into the design. However, two analyses were carried out, one using the same medical and psychosocial variables used in the regression analyses for pain measures, and another, which included an index of overall pain intensity (PVASI), in order to determine the contribution of these predictor variables once pain intensity reports were accounted for. The results of these analyses are displayed in Table 27. The results of the regressions of the observers' ratings of distress are found in Appendix G (Table 45-G), but will not be discussed here, since largely similar predictors were found.

Significant predictions were derived for the self-report ratings of distress, accounting for an average of 45% of the variance. The most striking aspect of these results is that affective and psychosocial variables almost exclusively predicted distress ratings, above and beyond the contribution made by demographic features. In addition, when a pain intensity measure was forced to enter next in the equation,

TABLE 27

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Distress in Abortion: Participants' Visual Analogue Rating (DVAS)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.20	.06	.06	2,106	3.15	.05	-.08	0.99	ns
Age	-.23						.07	2.84	ns
State-Anxiety (STAIS-1)	.47	.26	.20	3,105	12.33	000	.15	3.85	.05
Ambivalence in Decision	.41	.32	.06	4,104	12.51	.000	.16	4.21	.04
Fear of Intervention	.41	.36	.04	5,103	11.59	.000	.17	4.69	.03
Depression (BDI-1)	.41	.38	.02	6,102	10.42	.000	.15	3.66	ns[a]
Interpersonal Problems	.12	.40	.02	7,101	9.57	.000	.14	3.14	ns[a]
Moral Dilemma[b]	-.29[b]	.42	.02	8,100	8.94	.000	-.13[b]	3.10	ns[a]

Note a: Tests of the partial correlation coefficients revealed marginally significant contribution to the prediction ($p = 0.06$, 0.08 and 0.08, respectively).

Note b: Issues of concern are inversely-coded variables.

N.B. The regression calculated to partial out the contribution made by Pain Intensity (PVAS1) revealed that 48% of the variance in distress ratings was accounted for by the following variables: covariates (partial r = -.03 and .06, p = ns), Pain Intensity (partial r = .32, $p < 0.001$), Ambivalence (partial r = .23, $p < 0.01$), State-Anxiety (partial r = .21, $p < 0.01$), Trait-Anxiety (partial r = .14, $p = 0.05$), Prior Abortion (partial r = -.12, p = ns) and Perceived Tolerance to Pain (partial r = -.11, p = ns). Thus, 22% of the variance in the participants' distress reports was explained by Anxiety, Ambivalence, Previous Experience of Abortion and Perceived Tolerance to Pain, above and beyond the contribution made by Pain Intensity and Demographic factors (partial r = partial correlation coefficient).

similar psychosocial variables (e.g., state- and trait-Anxiety and ambivalence) still accounted for nearly half of the explained variance in distress reports.

These analyses revealed that 1) contrary to pain reports, age or education made a small contribution to the prediction of distress measures, accounting for only 6% of the variance, and that 2) affective and psychosocial features were highly significant in the prediction of distress scores, even once pain intensity reports were accounted for. Anxiety, ambivalence, fear, depression, interpersonal and moral problems before abortion contributed to significant or marginally significant increments in the prediction of distress reports (accounting for 36% of the variance). Moreover, state- and trait-anxiety and ambivalence explained a further 20% of the variance in distress ratings, once the contribution made by pain intensity was partialed out.

Taken together, the affective or psychosocial determinants of distress responses tend to support the validity of the measures used in the present research, assessing emotional distress in abortion as separate from pain perception, which, as noted earlier, is determined by multiple demographic, medical and psychological influences.

D. Responses on Ratings of Satisfaction and Relationships with Pre-Abortion Variables and Pain Reports

The participants were asked to rate their degree of satisfaction with the care received at the clinic on three measures included in the post-abortion assessment. The mean rating of quality obtained on a 4-item verbal scale (ranging from 1= fair to 4= excellent) was extremely high (M=3.8, S.D.=0.4), with 85% of the participants reporting the care as "excellent", and 14% as "very good". In addition, other measures pertaining to the subjects' satisfaction with the support and

TABLE 28

Product-Moment Correlations Between Satisfaction Ratings and Pain and Distress Measures (N = 109)

	Satisfaction Ratings		
	Support	Understanding	Quality of Care
Patients'			
SPS1			
PVAS1			
PPI1			
PRIS			
PRIA		-.36***	
PRIE			
PRIM	-.26**	-.35***	
PRIT		-.28**	
SPS2			
PVAS2			
SPS3	-.30**	-.29**	
PVAS3	-.35***	-.31**	
Observers'			
ObSPS1			
ObPVAS1			
ObSPS2			
ObPVAS2			
DVAS			
ObDVAS			

Asterisks indicate the level of significance of the coefficients (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.01$. Blanks represent non-significant coefficients or with values less than .25.

TABLE 29

Product-Moment Correlations Between Satisfaction Ratings and Demographic, Medical and Psychosocial Features Assessed Before Abortion (N = 109)

	Satisfaction Ratings		
	Support	Understanding	Quality of Care
Demographic			
Age			
Education	.33***	.34***	
Medical			
Dysmenorrhea			
Gestation			
Parity			
Abortion			
Company			
Partner			
Friend			
Relative			
In Room			
Affect			
STAIS-1			
STAIT-2			
BDI-1			
Decision			
Ambivalence			
Hesitation	-.26**		
Expectation			
Fear			
Expectancy of Pain			
Tolerance to Pain		.31**	
Issues			
Pain[b]			
Moral[b]			
Social[b]			
Abortion Procedure			
Aspiration and Curettage			
Physician Experience			

Asterisks indicate the level of significance of coefficients (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.01$. Blanks represent non-significant coefficients or with values less than .25.

understanding they received from the clinical staff also revealed a high degree of satisfaction among respondents (M=9.4, S.D.=1.1, and M=9.5, S.D.=1.0, respectively, on 10-point VAS scales). This is especially interesting, since 34% of subjects reported that their experience was worse than they had anticipated, and that the average expected pain scores were significantly smaller than the actual pain scores (PVAS1: M=5.6, S.D=2.6 vs Expected: M=4.6, S.D.=2.0; $t(108)=3.0$, $p<0.01$). This suggests that, despite the greater discomfort than anticipated, most women were satisfied with the quality of care and with the staff's attitudes.

To explore the relationships between satisfaction ratings, pain perception and patients' characteristics, product-moment correlations were calculated (The results of the regression analyses are in Appendix G (Tables 46-G and 47-G)). The significant correlation coefficients between the ratings of satisfaction, pre-abortion and outcome measures are displayed in Tables 28 and 29.

These analyses indicated that subjects who reported more intense and prolonged pain, and described their pain with affectively laden words, were more likely to perceive the attending staff as less sympathetic and/or supportive. Interestingly, the patients' educational attainment, hesitation before abortion and perceived ability to tolerate pain also correlated significantly with two of three measures of satisfaction. The results suggest that younger, less educated women, who have a lower tolerance to pain and more unresolved ambivalence at the time of the intervention may be more likely to report negatively perceived staff attitudes.

4. Predictors of Depression and Anxiety After Abortion

The final goal of the present research was to assess emotional responses at the time of abortion and at the follow-up visit. Section 2 of this chapter has

presented the affective and psychosocial characteristics of women participating in the study and the determinants of depression and anxiety before abortion. This final section looks at the data obtained at follow-up.

A. Responses on Affective and Medical Measures at Follow-up

Table 30 presents the descriptive statistics on follow-up reports of depression (BDI-2) and anxiety (STAIS-2, STAIT-2) obtained from 87 patients who returned for their medical check-up and who completed the final assessment questionnaire within two to four weeks after abortion. Confidentiality and logistical problems contributed to the loss of 20% of the initial sample: six documents were lost by the clinical or clerical staff whose task was to transmit them to the experimenter upon completion; four patients returned much later than the prescribed 4-week follow-up deadline; the remaining ten participants did not show up at all for their medical appointment and could not be reached. Table 30 displays the mean scores and standard deviations for the depression and anxiety measures obtained from 87 subjects, and the incidence of medical complications in 97 patients, as reported by physicians. These data indicate clearly that, while State-anxiety and Depression scores were moderately high before the intervention, they had decreased to normal levels at follow-up (STAIS: $t(86)=8.9$, $p<0.001$ and BDI: $t(86)=9.8$, $p<0.001$). Furthermore, Trait-Anxiety scores, which are generally considered to be stable, were also within normal ranges. However, eight participants, most of whom were adolescents, remained highly depressed, and nine reported severe levels of anxiety at their follow-up visit.

B. Statistical Predictors of Affective Measures at Follow-up

To examine the sources of the inter-individual variability in affective responses after abortion, product-moment correlations and hierarchical stepwise

TABLE 30

Means and Standard Deviations for the Affective Measures Collected at Follow-Up Visit (n = 87) and Frequency of Medical Complications Based on Physicians' Reports (n = 97)

	Before Abortion			Follow-Up			Norms[a]	
	Mean (N = 109)	s.d.	Range	Mean (n = 87)	s.d.	Range	Mean	s.d. (Mean s.d.)
Affective Measures								
State-Anxiety (STAIS)	48.2	9.2	27-68	36.1	12.1	20-66	39.4 ± 8.6	(42.4 ± 13.8)
Trait-Anxiety (STAIT)	--	--	--	37.6	11.3	20-69	38.2 ± 8.2	(41.9 ± 12.7)
Depression (BDI)	12.9	8.8	0-41	5.9	8.2	0-37	6.4 ± 3.5	
Medical Complications				n (n = 97)	%			
Endometritis[b]				8	8.3			
Hemorrhage				2	2.1			
Incomplete Abortion				4	4.1			
Others: Debris				1	1.0			
Pelvic Mass				1	1.0			
Anxiety				1	1.0			
Redo-Syndrome				1	1.0			
Medical Complications				16	16.5			
Hospitalization				2	2.1			
Recommended Social Follow-Up				7	7.2			

Note a: Normative data published in Spielberger et al.,(1970) for female college students (and medical populations), and in Gauthier et al.,(1984).

Note b: This item includes parametritis and salpingitis diagnosed after abortion, often resulting from undiagnosed chlamydia trachomatis infection prior to abortion.

regression analyses were performed. The significant correlation coefficients between pre-abortion information, outcome measures in abortion, and anxiety (STAIS-2, STAIT-2) and depression (BDI-2) at follow-up are displayed in Table 31. These analyses reveal that women who were highly depressed before the abortion tended to report generalized anxiety and were likely to remain depressed and anxious. Indeed, nearly half of the subjects who expressed moderate to severe levels of depression before abortion did not change at follow-up. In addition, significant correlations were found between pre-abortion measures of ambivalence, moral conflicts, pain reports, ratings of satisfaction with care, and follow-up scores. Demographic variables correlated only with depression (BDI-2).

Once again, hierarchical stepwise regressions were calculated to determine the relative contributions of demographic, psychosocial and medical features to anxiety and depression two or three weeks after abortion, above and beyond that afforded by the patients' initial reports (i.e., STAIS-1 and BDI-1 were the selected covariates). The results of these analyses are presented in Tables 32 and 33. Significant predictions were obtained for both depression and anxiety measures, accounting for 71% and 52% of their respective variances. The regression equation for depression scores (BDI-2) indicated that initial depression scores accounted for nearly half the variance, and that generalized anxiety explained an additional 13% of the variance in BDI-2 scores. In addition, the patients' perception of staff attitudes, age, initial ambivalence and support during the intervention were features that contributed to higher depression scores at follow-up. These results, therefore, suggest that initially depressed women, who may have felt isolated from the support of others, who were ambivalent and younger, were more likely to remain depressed at follow-up.

TABLE 31

Product-Moment Correlations Between Pre-Abortion Variables, Outcome Measures in Abortion and, Affective and Medical Measures Collected at Follow-Up

Measures	STAIS-2	STAIT-2	BDI-2	Medical Complications
		(n = 87)		(n = 97)
Pre-Abortion				
Age			-.30**	
Education			-.28**	
Gestation				
Parity				
Abortion				a**
Company				
Pain		.27b*	.28b**	
Moral	-.25b*			
Social				
STAIS-1	.27*	.41***	.38***	
BDI-1	.41***	.64***	.68***	
Preoccupation				
Ambivalence	.36**		.36**	
Hesitation	.30**	.26*	.32**	
Fear		.36*		
Abortion Outcome				
PVAS1		.25*	.28**	
PPI1		.28*	.25*	
PRIS	.25*	.35**	.39***	
PRIA	.28**	.33**	.46***	
PRIE	.26*	.25*	.37**	
PRIM		.35**	.42***	
PRIT	.28**	.39***	.47***	
PVAS2			.25*	
PVAS3			.26*	
DVAS	.27*	.39***	.38***	
Understood			-.39***	
Supported			-.39***	
Quality of Care				
Follow-Up				
STAIS-2		.66***	-.65***	
STAIT-2			.71***	
BDI-2				

Asterisks indicate the level of significance of coefficients (based on two-tailed probability levels): *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Blanks represent non-significant coefficients or with values less than .25.

Note a: More complications were found in repeat aborters ($X^2 = 10.71$, $p < 0.01$).

Note b: Issues of concern are inversely-coded variables.

TABLE 32

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Depression at Two-Week Follow-Up: Beck Depression Score (BDI-2)(n = 87)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariate (BDI-1)	.68	.46	.46	1,85	72.72	.000	.19	8.84	.004
Trait-Anxiety (STAIT-2)	.71	.59	.13	2,84	60.29	.000	.35	33.34	.000
Feeling Understood by Clinical Staff	-.39	.66	.07	3,83	52.87	.000	-.22	12.87	.000
Age	-.30	.68	.02	4,82	42.75	.000	-.15	6.41	.01
Companion in Room	-.17	.70	.02	5,81	36.35	.000	-.14	5.39	.02
Ambivalence in Decision	.36	.71	.01	6,80	32.16	.000	.12	4.42	.04

N.B. The regression calculated without STAI measures revealed that 58% of the variance in BDI-2 scores was predicted by the following variables: Initial Depression (BDI-1) (partial r = .49, $p < 0.001$), Age (partial r = .11, $p = 0.08$), Feeling Understood (partial r = -.16, $p < 0.05$), Hesitation Before Abortion (partial r = .14, $p = 0.08$) and Overall Pain Intensity (PRIT) (partial r = .12, $p = 0.09$) (partial r = partial correlation coefficient).

TABLE 33

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Anxiety at Two-Week Follow-Up: State-Anxiety Score (STAIS-2) (n = 87)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariate (STAIS-1)	.27	.07	.07	1,85	6.77	.01	-.03	0.11	ns
Trait-Anxiety STAIT-2)	.66	.44	.37	2,84	32.77	.000	.56	52.96	.000
Ambivalence in Decision	.36	.48	.04	3,83	25.76	.000	.22	8.53	.005
Presence of Partner	-.14	.50	.02	4,82	20.64	.000	-.16	4.23	.04
Parity	.08	.52	.02	5,81	17.84	.000	.15	3.80	.05

N.B. The regression calculated without STAIT-2 measures revealed that 84% of the variance in STAIS-2 scores was accounted by the following variables: Initial Anxiety (STAIS-1) (partial r = .09, p = ns), Ambivalence (partial r = .33, $p < 0.01$), Overall Pain Intensity (PRIT) (partial r = .22, $p < 0.05$) and Presence of Partner (partial r = -.18, p = 0.06) (partial r = partial correlation coefficient).

The analysis of the determinants of anxiety states after abortion (STAIS-2) revealed, in contrast, that initial anxiety explained only a small portion of the variance (7%), while Trait-anxiety accounted for an additional 37% of the variance. Ambivalence, the absence of the partner and parity further contributed to significant increments in the prediction of STAIS-2 scores (accounting for an additional 8% of the variance).

In sum, the findings presented in this last section reveal that, while most women experience an improvement in psychological status following the termination of an unwanted pregnancy, a small number of women did not experience such a successful crisis resolution and remained very depressed or anxious, despite the absence of medical complications. Thus a few women experienced negative reactions that did not diminish within two weeks of the abortion. Several factors, emphasized by other authors as well (e.g., Bracken et al., 1974; Friedman et al, 1974; Kaltreider et al., 1979; Lask, 1975; Moseley et al., 1981) predicted higher anxiety and depression scores at follow-up: anxiety proneness, pre-abortion depression, ambivalence, immaturity, multiparity, the partner's absence, and negatively perceived attitudes in others. Finally, and perhaps more basically, the results reveal that the careful assessment of each woman's affective and psychosocial situation, pain experience and perception of care, may help identify the patients at risk for greater emotional difficulties shortly after the termination of pregnancy.

DISCUSSION

The results of the present study show that pain associated with abortion is determined by multiple interacting influences. Ninety-seven percent of women in the present sample experienced some degree of pain during abortion by suction-curettage. The pain levels, like those reported in earlier studies (Stringer et al., 1975; Smith et al., 1979; Suprapto & Reed, 1984) were, on the average, of moderate intensity. The MPQ pain scores reveal that the intensity of pain during abortion ranks among moderately severe pain syndromes, such as cancer pain, low back pain and phantom limb pain (Melzack, 1975; Melzack et al., 1981), and exceeds those for menstrual pain (Reading, 1982b; Reading & Newton, 1977). Forty-one percent of the participants described their pain as severe or unbearable. The significant decreases in pain intensities after a 30-minute recovery period indicated that pain in abortion is usually a transient event. The MPQ words used most frequently depicted spatio-temporal, traction and constrictive pressure qualities. The relative predominance of sensory descriptors compared to affective words is consistent with previous reports by Melzack et al., (1982) and Reading (1982b) which suggest that this pattern of descriptors is characteristic of acute types of pain.

The relationships among the various subjective measures of pain obtained in this study were consistent with other research (Choinière, 1985; Kremer, Atkinson & Ignelzi, 1981; Reading, 1983; Taenzer, 1983), and revealed significant, high correlations between visual analogue scales, verbal rating scales and MPQ scores. In addition, significant correlations were obtained between the patients' and the nurses' ratings of pain. One surprising observation, however, was that the nurses tended to underestimate their patients' degree of discomfort during the intervention, but not when the subjects were transferred to the recovery room. It is possible that the

nurses' lower estimations of pain during the procedure were influenced by the type of behavioral cues available. It may be more difficult to estimate the intensity of pain experienced solely on the basis of facial and verbal expressions when motor activity is restricted during the intervention; reliance on these expressions of pain alone may lead to greater inaccuracy in the perception of other people's levels of pain. In a recent study, Craig and Patrick (1985) found a dissociation between observable pain behaviors and self-reports; the subjects' expressions of pain appeared to adapt rapidly while their subjective reports of pain continued to increase.

Statistical Predictors of Pain and Distress in Abortion

The major sources of inter-individual variability in pain intensity during abortion were found to be the patient's age and education, emotional and cognitive predispositions before abortion, and gynecological characteristics.

Demographic Characterisitics. Age and education correlated significantly with most measures of pain and explained approximately 15% of the variance in pain scores. This finding is consistent with clinical observations and previous research which indicate that the youngest patients experience more pain during abortion (Bracken et al., 1974; Smith et al., 1979). Several reasons may explain the influence of age and education on pain intensity in abortion.

It is possible that pain sensation and tolerance thresholds increase with age, perhaps due to changes in response criterion (Chapman, 1978a, 1978b; Clark & Mehl, 1971). Because age was significantly correlated with parity and previous abortion, it is also plausible that older participants gauged their pain levels during abortion on the basis of prior pain experiences, or that they may have developed different coping mechanisms that modify their perception of pain. However, the correlations between abortion pain measures and antecedents of parity and abortion were small or did not

reach statistical significance. This may be related, however, to the small number of multigravid subjects in the present sample. Until a similar study is carried out with a larger sample of multiparous women and repeat aborters, no firm conclusion may be drawn regarding the relationship between abortion-pain intensity in abortion and the antecedents of parity and induced abortions.

Moreover, the significant intercorrelations found between young age, dysmenorrhea, later gestational age, smaller doses of local anesthetic injected and several pain measures also suggest that the relationship between age and pain experience may be mediated by physiological or procedural factors. Higher pain intensity levels in younger patients may be the result of 1) dysmenorrhea, apparently associated with greater prostaglandin-synthesis and hypertonicity of the uterine isthmus (Dawood, 1981; Marx, 1979; Renaer, 1984; Stromberg, Akerlund, Forsling, Granstrom & Kindahl, 1984); 2) the wider dilatation and more extensive aspiration and curettage performed for late gestations, which have been associated with greater pain levels (Smith et al., 1979); and 3) the smaller doses of local anesthetic which were administered by a less experienced physician. Recent studies have suggested that the operator's experience and skill and the tendency to overdilate the cervix are important determinants of morbidity rates (Frank et al., 1985; Grimes et al., 1984; Nesheim, 1984). It is possible that these factors may have also contributed to the greater pain experienced by younger patients.

It is interesting that the patient's educational level was significantly correlated with several pain measures and made a significant contribution to the prediction of three subjective pain measures. This result is consistent with previous reports on labour and post-operative pain (Nettlebladt et al., 1976; Melzack et al., 1981; Taenzer, 1983). The reason for this association is not clear. It is possible that more educated subjects may be more inclined to present themselves as being more

stoical, or that they cope with pain differently and consequently diminish its intensity.

Important clinical implications can be derived from the relationships observed between age, pain and medical features. Firstly, at least equal doses of local anesthetic should be used for younger patients and adults, since body weight did not significantly differ between age groups. Secondly, more gradual techniques of cervical dilatation should probably be employed for younger nulliparas, who may have a small, rigid cervix: rather than rapidly, and sometimes forcibly, dilate the cervix with metal rods, laminaria tents inserted two hours or more before abortion, can slowly dilate the cervix and might help reduce the pain experienced during abortion. This procedure, in fact, has been recommended by several investigators to minimize the risks of short- and long-term complications, such as cervical or uterine trauma in adolescents (Cates, Schulz & Grimes, 1983; Grimes, Schulz & Cates, 1984; Hogue et al., 1983; Schulz, Grimes & Cates, 1983). Finally, since dysmenorrhea is more prevalent in women in their late teens and early twenties, and can be effectively relieved by prostaglandin-inhibitors (Henzl, Buttram, Segre & Bessler, 1977; Marx, 1979), premedication with prostaglandin-inhibitors may be a useful adjunct to standard paracervical blocks. Indeed, Suprapto and Reed (1984) recently found that a prostaglandin-inhibitor (Naproxen sodium) administered prior to abortion significantly decreased the intensity of pain during and following suction curettage abortion, as compared to placebo or no drug conditions. Whether the precautions and measures suggested above can effectively decrease the intensity of pain associated with abortion, particularly in younger patients remains to be explored in future investigations.

Psychosocial Features. The second important feature of the results is that affective and psychosocial variables together predicted an additional 17% of the

variance in several pain measures. Depression, which correlated with situational and trait-anxiety, ambivalence, fear and greater pain expectancy, emerged as the principal emotional predictor of higher pain scores. Moreover, moral conflicts, concerns about others' judgement and interpersonal problems contributed to significant increments in the prediction of several pain measures and distress scores, while the presence of the male partner, in or out of the operating room, did not contribute to the prediction of pain scores.

The present study is the first to assess the statistical contribution of various psychosocial dimensions in the experience of pain and distress in abortion, and to reveal that, in addition to emotional predispositions, the cognitive set and interpersonal situation of the women have an influence on the perception of pain during abortion. The significance of these variables in pain perception will be discussed after briefly examining the medical contributions to pain intensity.

Gynecological Characteristics. The third feature of the results is that gynecological characteristics were shown to contribute to the prediction of pain scores. Dysmenorrhea was correlated significantly with several pain measures during and after abortion, and emerged as a significant predictor of pain after abortion. Although this feature was significantly associated with higher MPQ pain scores during abortion, it did not emerge as a predictor in the regression equations of several measures, possibly because of the overlapping variance with demographic features already accounted for. In addition, the retroversion of the uterus and shorter gestations emerged in the prediction of higher pain intensity during abortion. Several reasons may explain these contributions. As noted earlier, the role of dysmenorrhea in abortion pain appears to be mediated by prostaglandin-synthesis, which triggers more painful and prolonged uterine contractions (Dawood, 1981; Renaer, 1984; Renaer & Guzinski, 1978; Stromberg et al., 1984). This hypothesis has

received further credence by the demonstration (Suprapto & Reed, 1984) that prostaglandin-inhibitors significantly decrease the intensity of pain during and after first-trimester abortion. While clinical observations have suggested that an anteflexed uterus may be temporarily pushed back by firm hand pressure on the suprapubic area to allow easier movements of the cannula and prevent damage to the uterine wall (Hern, 1984; Hodgson, 1981), the present study suggests that women with a retroversed uterus, who cannot be helped in this way, tend to experience more pain during the procedure. Finally, the gestational period at which abortion is performed also contributed significantly to the prediction of pain scores. This finding is in agreement with a previous study (Smith et al., 1979) which found that women with gestations of five to seven weeks reported more pain during the procedure.

Psychological and Psychosocial Determinants of Pain

One aim of the present study was to investigate the relationship between pre-abortion affective, cognitive and social factors and pain during the intervention, using a pain measurement strategy which reflected the most recent concepts in pain measurement (Frederickson, Lynd & Ross, 1978; Melzack, 1983; Littlejohns & Vere, 1981).

The positive correlations between higher levels of state- and trait-anxiety, fear and increased pain perception and distress are consistent with the literature on acute pain. Because anxiety is traditionally believed to be especially relevant to acute pain, depressed affect is considered almost exclusively in relation to chronic pain (Merskey, 1968; Merskey & Boyd, 1978; Roy, Thomas & Matas, 1984; Sternbach, 1968, 1974; Weisenberg, 1977). The present results indicate that depressed affect in the week prior to abortion was significantly correlated with four out of seven pain measures, and emerged as the most important predictor of pain intensity during

abortion. One possible reason for the significant relationships between depression and pain measures may be that the scores on the BDI are a reflection of disturbances in physical functioning related to pregnancy. If this were the case, one would expect small correlations between measures of pain, depression, anxiety and distress. Another possibility is that the relationships are a reflection of neurobiological disturbances thought to underlie both depression and pain perception (King, 1981; Ghia et al., 1981; Rosenblatt et al., 1984). Yet, the mean scores on the BDI and STAIS revealed elevations in depression and anxiety before abortion in agreement with several studies in the psychological literature on abortion (Bracken et al., 1974; Lask, 1975; Greer et al., 1976; Payne et al., 1976; Freeman, 1978; Moseley et al., 1981; Major et al., 1985).

The results indicate, therefore, that pre-abortion depression, situational and chronic anxiety, as well as moral and interpersonal concerns are related to the perception of acute pain and distress. There is increasing evidence to suggest that the patients' perception of pain and responses to stress may be related to their typical emotional reactivity (Horowitz, Wilner & Alvarez, 1979; Taenzer, 1983; Taenzer et al., 1986) and cognitive coping style (Cohen & Roth, 1984; Taenzer, 1983; Weisenberg, 1977, 1984). Several studies have indicated that subjects who engage in catastrophizing cognitions (generally characterized by obsessive rumination, feelings of being overwhelmed or powerless to control or tolerate painful events and anticipation of disastrous consequences) report more pain, distress, anxiety and depression than those who use coping strategies (Chaves & Barber, 1974; Chaves & Brown, 1978; Spanos, Brown, Jones & Horner, 1981; Taenzer, 1983). In the present study, measures of preoccupation, ambivalence, fear, pain expectancy and of lack of social support contributed significantly to higher pre-abortion anxiety and depression, and correlated with several subjective pain measures. It is tempting, therefore, to

speculate that a depressive cognitive style described by Ellis (1962) and Beck, Rush, Shaw and Emery (1979), consisting of selective attention to distressing stimuli, distortions of logical analytical thought patterns and social withdrawal, may be operating in some individuals and contribute to their mood and greater pain experience. The association between depressed affect, cognitive features and pain has been demonstrated in a recent studies which found that patients who show the cognitive style attributed to depression by Beck (1976) report higher levels of pain (Lefebvre, 1981; Sprock, Braff, Saccuzzo & Atkinson, 1983).

Taken together, these results suggest that the patients' perception of pain during abortion is related to their pre-operative emotional states and typical emotional reactivity, as well as cognitive and social sets. One implication of these findings is that the best indicators for physicians and counsellors who wish to identify a patient at risk for higher levels of pain and distress appear to be the patient's general pattern of anxiety, pre-operative levels of depression and anxiety, moral conflicts and problems with significant others' support.

Statistical Predictors of Depression and Anxiety

Before Abortion. It is widely recognized that abortion is a stressful life event, and that patients typically react with pathologically elevated levels of anxiety and depression. Half of the women in the present sample reported clinically significant levels of mild to severe depression and anxiety before abortion, and one in five revealed signs of moderate to severe depression. These findings are consistent with the reviews of the literature in the area (cf., David, 1985; Gibbons, 1984; Handy, 1982), and suggest that an unwanted pregnancy constitutes, for most women, a life crisis that is significantly abated shortly after early termination.

The results of the multiple regression analyses revealed, in addition, that particular cognitions and personality features are associated with depressed affect before abortion. Higher levels of trait- and state-anxiety, preoccupation with the abortion, greater expectancy of pain and ambivalence in the decision were found to be significant predictors of depression scores (BDI-1) before abortion. As suggested in the literature on stress coping mechanisms and cognitive style, these features may in some way reflect catastrophizing and pessimistic cognitions which appear to mediate or covary with increased pain perception, distress and depression. Interestingly, two variables further contributed to higher levels of pre-abortion depression: greater concerns about others' disapproval and the partner's absence on the day of the abortion. Whether these variables reflected the patients' perceived or anticipated lack of support by significant others (parents, partner or peers) and isolation, current interpersonal problems with the partner, lack of intimacy, or even negative attitudes by the partner toward the abortion decision, is not clear. However, previous research has been unanimous in reporting that partner and/or parental support, as measured by self-reports, is an important determinant of emotional responses to an abortion (Bracken et al., 1974, 1975, 1978; David, 1985; Freeman, 1978; Friedman et al., 1974; Lask, 1975; Moseley et al., 1981; Payne et al., 1976; Shusterman, 1979). The contribution of the partner's presence to lower levels of depression, however, contradict the results of a recent study that found that women accompanied by their partner were more depressed and had lower expectancies to cope before abortion than women not with their partner (Major et al., 1985).

The multiple regression analysis of state-anxiety scores collected before abortion indicated, on the other hand, that fear, hesitations and commitment to studies were the main predictors of greater levels of pre-operative anxiety. While the association between fear, avoidance and anxiety are well known (Bernstein, 1975;

Cohen & Roth, 1984), the relationship with greater state-anxiety before abortion and study plans, generally reported by younger and nulliparous subjects is not evident. It may be, however, a reflection of increased apprehension in patients who are possibly less familiar with gynecological experiences or who have had fewer medical antecedents.

Together the results reveal that multiple cognitive, personality, affective and social features contribute to higher depression and anxiety before abortion, and suggest that the patient's typical pattern of emotional reactivity, ruminations, expectancies of pain, fear, ambivalence, anticipated lack of significant others' support, and the partner's absence constitute some of the elements that mediate, precipitate or covary with negative affect prior to abortion.

One implication of these findings is that patients would perhaps benefit from interventions specifically designed to help them become aware of the occurrence of the catastrophic cognitions and from means to avert them. This has been used successfully in the treatment of depression (Beck, 1976; Rush, Beck, Kovacs & Hollen, 1977; Shaw, 1977)1976), chronic pain (Turner & Chapman, 1982; Turk et al., 1983) and acute burn pain (Wernick, Jaremko & Taylor, 1981). Another implication is that preparation before abortion may be helpful to diminish anticipatory distress (Anderson & Masur, 1983; Reading, 1979, 1982c) and should probably involve sensory information, discussion of feelings and concerns, focus on future life plans, realistic appraisals of alternatives, as well as on cognitive strategies to avert pessimistic, self-critical thoughts and strategies to cope with others' (anticipated or real) unfavorable attitudes; such preparation may, in addition, include the male partners and allow them to discuss their opinions and emotional responses to the abortion decision.

After Abortion. At follow-up, two weeks after abortion, only 9% of women indicated moderate and severe levels of depression or anxiety, and 7% reported mild depression. These results support previous investigations which indicate an improvement in psychological status following abortion (Ashton, 1980; Belsey et al., 1977; Freeman, 1978; Freeman et al., 1980; Gibbons, 1984; Greer, et al., 1976; Lask, 1975; Moseley et al., 1981; Osofsky & Osofsky, 1972; Payne et al., 1976).

The results of the hierarchical analyses revealed that younger women who were highly depressed before abortion, who reported higher levels of trait-anxiety, felt less understood or supported by the clinical staff, who were greatly ambivalent and had no companion throughout the abortion intervention, were more likely to remain depressed after two weeks. The results for anxiety scores indicated that trait-anxiety, ambivalence, as well as the partner's absence and multiparity contributed to higher levels of situational anxiety at follow-up. Together these risk factors are consistent with the psychological literature which suggests that the patient's general problems in living, ambivalence, young age, lack of partner's or parental support, negatively perceived staff attitudes and multiparity are associated with adverse emotional reactions (Adler, 1975; Ashton, 1980; Belsey et al., 1977; Bracken et al., 1974, 1978; Freeman, 1978; Friedman et al., 1974; Greer et al., 1976; Kaltreider et al., 1979; Lask, 1975; Moseley et al., 1981; Payne et al., 1976).

One interesting observation of the study was that younger patients appeared to be more at risk for unremitting depressed mood following abortion. Although the present data indicate, in agreement with previous research (Cates, 1981; Lask, 1975; Olson, 1980), that most teenagers react to abortion in a positive way, probably with a sense of relief (72% of them reported no signs of depression or anxiety), a greater percentage of teenagers (28%) than older women (9%) reported mild to severe levels of depression two weeks after abortion. The reasons for the higher prevalence of

prolonged depressed mood among teenagers are not clear. It is possible that some adolescent girls cope or resolve less effectively their feelings about abortion because of more negative attitudes toward abortion (Chilman, 1980; Gispert & Falk, 1978; Rinck, Rudolph & Simkins, 1983), of unfavorable support from parents, partner, peers (Bracken et al., 1974; Eisen & Zellman, 1984; Freeman, 1978) or from staff members (Kaltreider et al., 1979), or possibly because of the "externality" of their decision, perhaps often based on concerns about their relationships with parents rather than personal life goals or ability to care for a child (Dixon, Strano & Willingham, 1984; Lewis, 1980). Moreover, it is worth noting that adolescents also have a higher rate of emotional complications than older women after term birth (Brewer, 1977; Clarke & Williams, 1979). While earlier research found no significant differences between pregnant and never-pregnant adolescent girls on measures of personality and intelligence (David, 1972; Bracken et al., 1978; Olson, 1980; Peres-Reyes & Falk, 1973), a recent study by Freeman (1984) suggests that pregnant adolescents show features of lower self-esteem and poor self-competence when compared to matched never-pregnant girls. It is tempting to speculate, therefore, that some adolescents may cope less effectively with the resolution of feelings about the abortion because of greater feelings of helplessness and of negative self-image (Freeman, 1977, 1978; Lefevre & West, 1981; Peterson, Schwartz & Seligman, 1981; Silver & Wortman, 1980). The psychological and social bases for the higher risks of adverse emotional consequences after abortion must, however, be left to future research.

In summary, the present study is the first to assess the relative contribution of the patient's demographic, psychosocial and medical characteristics in the perception of pain during and after abortion. It also examined the statistical determinants of emotional distress, anxiety and depression before abortion and at

short-term follow-up: the results reveal the multiple influences of personality attributes and situational predispositions, as well as cognitive and social features. The limitations of the study, however, leave a number of issues unresolved.

Firstly, French-speaking women who were undergoing first-trimester abortion by suction-curettage with local anesthesia were selected for the study. The easy access and feasability of this procedure has made it the most popular method of pregnancy termination, which can be safely performed in a physician's office or in non-hospital clinics. It is possible, however, that the results might be influenced by ethno-cultural factors or by medical practices which may differ across settings. In addition, the contribution of various demographic, gynecological and psychological determinants of pain measures might differ in populations experiencing less intense pain, receiving additional premedication, or of different cultural background. Several studies have, indeed, found differences in pain responses and attitudes in people of Anglo-Saxon or Northern European origin and Mediterranean or Latin cultures (Zborowski, 1952, 1969; Sternbach & Tursky, 1965; Wolff, 1985), as well as between French-speaking and English-speaking patients (Choinière, 1985). However, the consistency of the results of this study with previous reports in the British and American literature and with clinical experience (e.g., Gillett, 1985, personal communication) appears to suggest that these factors may not have created important biases in the findings. It may also be argued that abortions practiced in non-hospital clinics may be inferior to those performed in hospitals by gynecologists. Unfortunately, no data appear to be available at present on these important issues. Secondly, it must be stressed that the present research employed a correlational research design. Thus the results cannot provide direct evidence in support of causal hypotheses and can only be interpreted in terms of consistency with previous reports. Thirdly, several important measures (e.g., issues of concern, decision-making,

psychosocial reasons, social support) were newly constructed for this research and so have not been validated previously. However, a number of statistical relationships provide preliminary evidence in support of their construct validity. Ambivalence, for example, was significantly correlated with depression, anxiety, hesitation and moral conflicts in a pattern consistent with previous research (Bracken et al., 1974; Freeman, 1978; Friedlander et al., 1984).

Research and Clinical Implications

The variety of medical, social and psychological threats which characterize a life crisis such as abortion makes this event a useful model for studying stress and pain. However, the impossibility of experimental control over pain-relevant dimensions such as demographic and medical features requires that future research use a large number of participants and adopt quasi-experimental precautions. These might include statistical or sampling controls (Cohen & Cohen, 1975). Future research should also adopt multivariate measurement approaches, which provide critical checks against generalizing from a single measure, as well as considerably more statistical power (Cohen, 1969; Harris, 1975) than their univariate counterparts since they take into account the interrelationships among the variables.

That the variability in pain intensity in abortion can be partly predicted by the patient's demographic, psychosocial and medical characteristics is perhaps the most clinically significant observation of the study. The present results further indicate that ambivalence, rumination, expectancy of pain, fear, generalized anxiety, and the partner's absence and others' anticipated lack of support, are significant determinants of depressed and anxious mood before abortion, and suggest, therefore, that individual differences in emotional responses to this life crisis are mediated in part by cognitive features, general patterns of emotionality and social support.

Future research may continue to explore the contribution of stress-coping mechanisms (Chaves & Brown, 1978; Cohen & Roth, 1984), and of the network of interpersonal influences which characterize one's social environment, since the expectancies and values held by significant others exert a strong influence in determining the experience of self (e.g., Bandura, 1977, 1982). In addition, investigators may examine the significance of demographic, psychosocial and medical predictors of pain perception in a wide spectrum of medical interventions, such as laparoscopic or amniocentesis examinations, sterilizations and IUD installations, as a preliminary test of the generality of the pain and mood determinants identified in the present study.

However, pain management during first-trimester abortion with local anesthesia alone is not sufficient for a considerable number of women; this indicates that additional pain control interventions should be considered as complementary procedures for the management of pain in abortion. For example, prostaglandin-inhibitors, short-acting narcotic analgesia may constitute useful adjuncts (Corli et al., 1984; Price, Harkins, Rafii & Price, 1986; Suprapto & Reed, 1984), as well as sound psychological preparation, which focusses on sensory information and on coping strategies to avert maladaptive cognitions. Future clinical trials may assess the efficacy of these approaches in the control of pain and distress in abortion.

Biomedical technology has advanced rapidly and has allowed the easier access and feasability of safe, early abortions, with the fortunate results that fewer women die or are maimed by illegal abortions, and may, on their own timetable, subsequently have normal pregnancies (Tietze, 1984). However, the psychological, social and physiological processes of pain, distress and affect before and after

abortion need to be better understood. Clearly, this is an area in which psychologists can make important contributions.

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APPENDICES

APPENDIX A

FORMULAIRE DE CONSENTEMENT

A la demande de l'équipe médicale, je travaille à titre de chercheuse à faire une étude pour mieux comprendre ce que vous vivez lors de l'avortement. Nous voulons connaître votre expérience physique et émotive au cours de l'avortement ainsi qu'avant votre rendez-vous. Votre participation sera fort appréciée et nous aidera à améliorer notre service.

Je recueillerai pour cette recherche l'information sur votre condition médicale et personnelle à partir de fiches remplies par votre infirmière et votre médecin. Je vous demanderai également de remplir des questionnaires qui porteront sur vos impressions et sur l'expérience que vous avez vécue. Je vous garantis la plus stricte confidentialité et l'anonymat complet puisque seulement moi consulterai vos réponses. Toute l'information recueillie ici n'ira pas dans votre dossier médical et ne servira qu'aux fins de la recherche. Si vous êtes intéressée à connaître les résultats de cette étude, il nous fera plaisir de vous remettre un tiré-à-part de l'article qui en résultera.

Consentement

Les buts de la recherche, tels que décrits ci-haut, m'ont été expliqués par la chercheuse, Eliane Bélanger, et je comprends que ma participation me demande de répondre à des questionnaires quelques temps avant et après mon avortement, ainsi qu'une ou deux semaines après, lors de ma visite de contrôle. Je sais que toute l'information ne servira qu'aux fins de la recherche et sera confidentielle et anonyme. Je sais également que je n'ai aucune obligation à participer et que la qualité des soins qui me sont offerts ne sera en aucun point influencée par ma décision.

Date:_____ Participante:_____

Eliane Bélanger, M.Sc. (Ph.D)
Chercheuse et psychologue
C.P.P.Q. no. 02679-80

APPENDIX B

Participants' Preabortion Assessment

Date: _____
Code CLSC: _____
No. dossier: _____

Questionnaire 1.

Les questions suivantes nous aideront à mieux comprendre ce que vous avez vécu, vos sentiments et vos appréhensions, depuis que vous avez appris que vous étiez enceinte jusqu'à maintenant.

(A) Pour répondre aux questions, faites un trait vertical sur la ligne horizontale à l'endroit qui indiquerait le mieux votre expérience.

(1) Dans la semaine qui a précédé votre rendez-vous ici, diriez-vous que vous pensiez beaucoup à l'avortement?

Je n'y pensais pas du tout — J'y pensais constamment

(2) Diriez-vous que vous vous sentez inquiète ou effrayée par rapport à l'avortement?

Je ne suis pas du tout inquiète — Je suis très effrayée

(3) Diriez-vous que vous avez pris la décision d'avorter: (veuillez encercler le chiffre approprié)

1 seule
2 avec l'aide de votre partenaire (ou du père)
3 avec l'aide d'ami(e)s
4 avec l'aide de votre famille
5 avec l'aide d'un professionnel

(4) Diriez-vous que votre décision d'avorter a été pour vous ?

très facile à prendre — très difficile à prendre

(5) En ce moment, ressentez-vous encore certaines hésitations à vous faire avorter?

pas du tout — beaucoup

(5) Pensez-vous que l'avortement comporte une certaine quantité de douleur ou de malaise? A combien de douleur vous attendez-vous?

pas de douleur — douleur insupportable

(6) En vous basant sur vos expériences passées, diriez-vous que **vous** êtes résistante à la douleur?

pas du tout ou très peu résistante — très résistante

(7) Dans quelle proportion votre inquiétude par rapport à l'avortement peut-elle être attribuée aux aspects suivants. Indiquez le rang d'importance que vous accordez à chacun des aspects (de 1 à 4).

- la douleur ____
- les complications ____
- le problème moral ____
- la réaction de votre entourage ____

(8) Diriez-vous que vous vous sentez bien informée au sujet de l'avortement que vous allez vivre?

je me sens très peu informée — je me sens très bien informée

Introduction (Pré-4 @ 6)

Les deux questionnaires suivants nous permettront de mieux comprendre ce que vous vivez présentement ou depuis que vous savez que vous êtes enceinte. Bien que certains énoncés puissent vous paraître bizarres ou inappropriés, votre réponse pour chacun des énoncés de ces tests standards est nécessaire à la compilation des résultats. Maintenant, veuillez lire les consignes pour chacun des questionnaires.

B. Questionnaire d'évaluation personnelle (ASTA-AS)

Voici un certain nombre d'énoncés que les gens ont l'habitude d'utiliser pour décrire ce qu'ils ressentent. Lisez chaque énoncé, puis encerclez le chiffre approprié à droite de l'exposé pour indiquer comment vous vous sentez présentement . Ne vous attardez pas trop sur chaque énoncé mais donnez la réponse qui semble décrire le mieux les sentiments que vous éprouvez en ce moment.

		PAS DU TOUT	UN PEU	MODÉREMENT	BEAUCOUP
1.	Je me sens calme	1	2	3	4
2.	Je me sens en sécurité	1	2	3	4
3.	Je suis tendue	1	2	3	4
4.	Je suis triste	1	2	3	4
5.	Je me sens tranquille	1	2	3	4
6.	Je me sens bouleversée	1	2	3	4
7.	Je suis préoccupée actuellement par des contrariétés possibles	1	2	3	4
8.	Je me sens reposée	1	2	3	4
9.	Je me sens anxieuse	1	2	3	4
10.	Je me sens à l'aise	1	2	3	4
11.	Je me sens sûre de moi	1	2	3	4
12.	Je me sens nerveuse	1	2	3	4
13.	Je suis affolée	1	2	3	4
14.	Je me sens sur le point d'éclater	1	2	3	4
15.	Je suis relaxée	1	2	3	4
16.	Je me sens heureuse	1	2	3	4
17.	Je suis préoccupée	1	2	3	4
18.	Je me sens surexcitée et fébrile	1	2	3	4
19.	Je me sens joyeuse	1	2	3	4
20.	Je me sens bien	1	2	3	4

C. Questionnaire d'évaluation personnelle (IBD)

Ce questionnaire contient plusieurs groupes de phrases. Pour chacun des groupes, lisez attentivement toutes les phrases et placez un crochet (✓) à côté de la phrase qui décrit le mieux comment vous vous sentez présentement ou depuis que vous savez que vous êtes enceinte. N'omettez aucun groupe. Choisissez une seule phrase pour chacun des groupes.

1. ____ Je ne me sens pas triste.
   ____ Je me sens morose ou triste.
   ____ Je suis morose ou triste tout le temps et je ne peux pas me remettre d'aplomb.
   ____ Je suis tellement triste ou malheureuse que cela fait mal.
   ____ Je suis tellement triste ou malheureuse que je ne peux plus le supporter.

2. ____ Je ne suis pas particulièrement pessimiste ou découragée à propos du futur.
   ____ Je me sens découragée à propos du futur.
   ____ Je sens que je n'ai plus rien à attendre du futur.
   ____ Je sens que je n'arriverai jamais à surmonter mes difficultés.
   ____ Je sens que le futur est sans espoir et que les choses ne peuvent pas s'améliorer.

3. ____ Je ne sens pas que je suis un échec.
   ____ Je sens que j'ai échoué plus que la moyenne des gens.
   ____ Je sens que j'ai accompli très peu de choses qui aient de la valeur ou une signification quelconque.
   ____ Quand je pense à ma vie passée, je ne peux voir rien d'autre qu'un grand nombre d'échecs.
   ____ Je sens que je suis un échec complet en tant que personne (parent, femme).

4. ____ Je ne suis pas particulièrement mécontente.
   ____ Je me sens tannée la plupart du temps.
   ____ Je ne prend pas plaisir aux choses comme auparavant.
   ____ Je n'obtiens plus de satisfaction de quoi que ce soit.
   ____ Je suis mécontente de tout.

5. ____ Je ne me sens pas particulièrement coupable.
   ____ Je me sens souvent mauvaise ou indigne.
   ____ Je me sens plutôt coupable.
   ____ Je me sens mauvaise et indigne presque tout le temps.
   ____ Je sens que je suis très mauvaise ou très indigne.

6. ____ Je n'ai pas l'impression d'être punie.
   ____ J'ai l'impression que quelque chose de malheureux peut m'arriver.
   ____ Je sens que je suis ou serai punie.
   ____ Je sens que je mérite d'être punie.
   ____ Je veux être punie.

7. ____ Je ne me sens pas déçue de moi-même.
____ Je suis déçue de moi-même.
____ Je ne m'aime pas.
____ Je suis dégoûtée de moi-même.
____ Je me hais.

8. ____ Je ne sens pas que je suis pire que les autres.
____ Je me critique pour mes faiblesses et mes erreurs.
____ Je me blâme pour mes fautes.
____ Je me blâme pour tout ce qui arrive de mal.

9. ____ Je n'ai aucune idée de me faire du mal.
____ J'ai des idées de me faire du mal mais je ne les mettrais pas à exécution.
____ Je sens que je serais mieux morte.
____ Je sens que ma famille serait mieux si j'étais morte.
____ J'ai des plans bien définis pour un acte suicidaire.
____ Je me tuerais si je le pouvais.

10. ____ Je ne pleure pas plus que d'habitude.
____ Je pleure plus maintenant qu'auparavant.
____ Je pleure tout le temps maintenant. Je ne peux pas m'arrêter.
____ Auparavant, j'étais capable de pleurer mais maintenant je ne peux pas pleurer du tout, même si je le veux.

11. ____ Je ne suis pas plus irritée maintenant que je le suis d'habitude.
____ Je deviens contrariée ou irritée plus facilement maintenant qu'en temps ordinaire.
____ Je me sens irritée tout le temps.
____ Je ne suis pas irritée du tout par les choses qui m'irritent habituellement.

12. ____ Je n'ai pas perdu intérêt aux autres.
____ Je suis moins intéressée aux autres maintenant qu'auparavant.
____ J'ai perdu la plupart de mon intérêt pour les autres et j'ai peu de sentiment pour eux.

13. ____ Je prends des décisions aussi bien que jamais.
____ J'essaie de remettre à plus tard mes décisions.
____ J'ai beaucoup de difficultés à prendre des décisions.
____ Je ne suis pas capable de prendre de décisions du tout.

14. ____ Je n'ai pas l'impression de paraître pire qu'auparavant.
____ Je m'inquiète de paraître vieille et sans attraits.
____ Je sens qu'il y a des changements permanents dans mon apparence et que ces changements me font paraître sans attraits.
____ Je me sens laide et répugnante.

15. ____ Je peux travailler pratiquement aussi bien qu'avant.
____ J'ai besoin de faire des efforts supplémentaires pour commencer à faire quelque chose.
____ Je ne travaille pas aussi bien qu'avant.
____ J'ai besoin de me pousser très fort pour faire quoi que ce soit.
____ Je ne peux faire aucun travail.

16. ____ Je peux dormir aussi bien que d'habitude.
____ Je me réveille plus fatiguée le matin que d'habitude.
____ Je me réveille 1-2 heures plus tôt que d'habitude et j'ai de la difficulté à me rendormir.
____ Je me réveille tôt chaque jour et je ne peux dormir plus de 5 heures.

17. ____ Je ne suis pas plus fatiguée que d'habitude.
____ Je me fatigue plus facilement que d'habitude.
____ Je me fatigue à faire quoi que ce soit.
____ Je suis trop fatiguée pour faire quoi que ce soit.

18. ____ Mon appétit est aussi bon que d'habitude.
____ Mon appétit n'est pas aussi bon que d'habitude.
____ Mon appétit est beaucoup moins bon maintenant.
____ Je n'ai plus d'appétit du tout.

19. ____ Je n'ai pas perdu beaucoup de poids dernièrement.
____ J'ai perdu plus de 5 livres.
____ J'ai perdu plus de 10 livres.
____ J'ai perdu plus de 15 livres.

20. ____ Je ne suis pas plus préoccupée de ma santé que d'habitude.
____ Je suis préoccupée par des maux et des douleurs, ou des problèmes de digestion ou de constipation.
____ Je suis tellement préoccupée par ce que je ressens ou comment je me sens qu'il est difficile pour moi de penser à autre chose.
____ Je pense seulement à ce que je ressens ou comment je me sens.

21. ____ Je n'ai noté aucun changement récent dans mon intérêt pour le sexe.
____ Je suis moins intéressée par le sexe qu'auparavant.
____ Je suis beaucoup moins intéressée par le sexe maintenant.
____ J'ai complètement perdu mon intérêt pour le sexe.

Date: _____
Code CLSC: _____
No. dossier: _____

Medical Staff's Preabortion Data Collection

Fiche statistique de données personnelles et médicales

I. Données de base	CODES DE VARIABLES
No. du sujet: ___	(Ne pas remplir)
1. Nombre de jours entre demande et date prévue de l'avortement: __	
2. Lieu __	(1 = CLSC Centre-ville; 2 = MGH; 3 = autre)
3. Langue utilisée pour questionnaire __	(1 = français; 2 = anglais)
Date de naissance: _____	
4. Age __	
5. Scolarité - Nb. d'années: __	(Nombre d'années d'études complétées)
- Niveau: __	(Dernière année complétée au: 1 = primaire; 2 = sec. incomplet; 3 = sec. V complet; 4 = CEGEP complet; 5 = Univ. incomplet; 6 = diplôme univ.)
6. Occupation __	(0 = chômage,BES; 1 = études; 2 = foyer; 3 = emploi partiel; 4 = emploi complet; 5 = autre)
7. Statut matrimonial __	(1 = célibataire; 2 = mariée/union de fait; 3 = divorcée/séparée/veuve; 4 = autre (e.g. remariée)_____
8. Race __	(1 = blanche; 2 = noire; 3 = jaune; 4 = rouge; 5 = métisse)
9. Groupe ethnique Allégeance culturelle: _____ __	(1 = can.fran.; 2 = can.angl.; 3 = antillaise; 4 = latino-américaine; 5 = européenne; 6 = asiatique; 7 = africaine; 8 = américaine)
10@17. Raisons motivant la demande:	(1 = 1ère raison; 2 = 2e raison; 3 = 3e raison; 0 = 4e ou plus/nil)
1. Socio-économique __	
2. Crise familiale __	
3. Travail ou études __	
4. Enfants rapprochés ou nombre suffisant __	
5. Non-désir __	
6. Age __	
7. Refus de répondre __	
8. Autre (santé, viol, hérédité....) __	
18@21. Histoire gestationnelle antérieure:	Inscrire le nombre (0-9)
1. Grossesse antérieure __	
2. Accouchement antérieur __	
3. Avortement provoqué __	
4. Avortement spontané __	

Date:_____
Code CLSC:_____
No. dossier:_____

I. Données de base (suite)

	CODES DE VARIABLES
22@30. Contraception utilisée:	(1 = principale; 2 = simultanée; 0 = nil)
1. Anovulant __	
2. Stérilet __	
3. Diaphragme __	
4. Cap __	
5. Spermicide __	
6. Condom __	
7. Observation cycle (calendrier/température) __	
8. Pilule du lendemain __	
9. Autre:_____	
31. Antécédents gynécologiques:	(0 = non; 1 = oui)
1. Césarienne __	
2. Infection pelvienne; détaillez:_____ __	(Endométrite, salpingite, maladie inflammatoire pelvienne)
3. Autre; détaillez:_____ __	(Malformation, chirurgie, endométriose, etc.)
4. Dysménorrhée __	(Menstruations douloureuses au point d'empêcher certaines activités ou loisirs et/ou de devoir prendre des médicaments)
5. Tension prémenstruelle. __	(Symptômes physiques ou psychologiques exagérés avant menstruations; e.g. oedème, douleurs abdominales, seins sensibles, gonflement, maux de tête, fatigue, dépression, tension, irritabilité)
32. Problème médical actif __ _____	(0 = non; 1 = oui) (e.g. diabète, convulsion, etc)
33@35. Mensurations:	
1. Taille:__po. ___cm __ __ __	(cm)
2. Poids:__lbs, ___kg __ __ __	(kg)
3. Poids/taille:	
___lbs/po __ __ __	
___kg/cm __ __ __	(kg/cm)
36-37. Antécédents de santé mentale:	(0 = non; 1 = oui)
1. Traitement pour problème de santé mentale __	(Aide professionnelle ou non (consult./méd./hôp. pour problème psychologique ou de santé mentale
2. Traitement pour toxicomanie __	(Problème de drogue ou d'alcool)
38. Prélèvement de l'endocol:	(0 = non fait; 1 = négatif; 2 = positif)
1. Pour gono __	
2. Pour chlamydia __	

Nom de l'infirmière:_____

APPENDIX C

Participant's Postabortion Assessment
Fiche d'évaluation post-avortement

Date:_____
Code CLSC:_____
No. dossier:_____

Le premier de ces questionnaires a été conçu afin d'en savoir davantage sur les malaises ou la douleur que vous avez ressentis durant l'avortement. Ce questionnaire nous sert à mesurer la quantité de douleur que vous avez éprouvée et nous indique où se situait votre douleur, si elle changeait avec le temps et ce que vous ressentiez exactement.

Le deuxième questionnaire vise à connaître vos impressions, votre satisfaction et vos émotions suite à l'expérience que vous venez de vivre.

I. Questionnaire de McGill sur la douleur

Ce questionnaire vise à nous apprendre davantage sur votre douleur durant l'avortement. Notez que le terme "douleur" est utilisé au sens large, se référant à diverses intensités de douleur, tels malaises, inconfort, mal, etc.

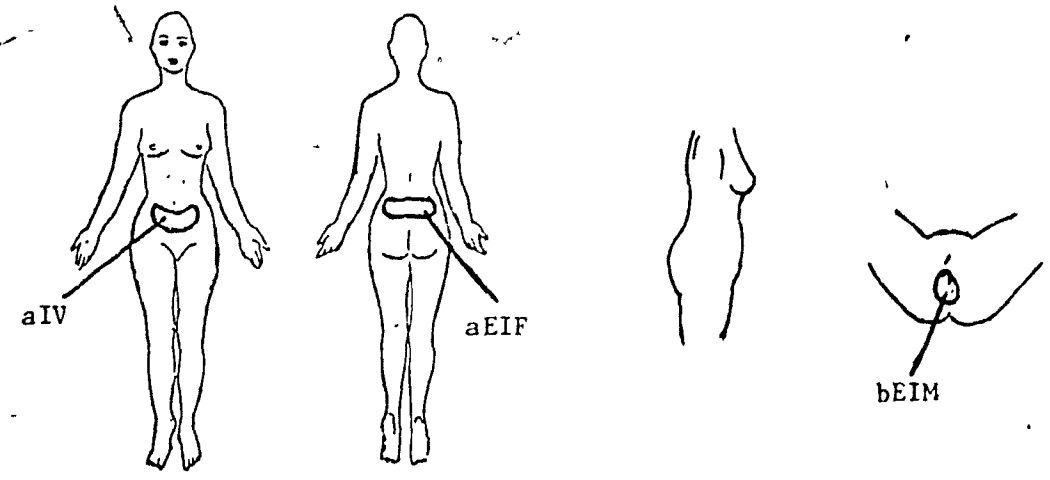
- Avez-vous pris des analgésiques aujourd'hui? Oui___ Non ___

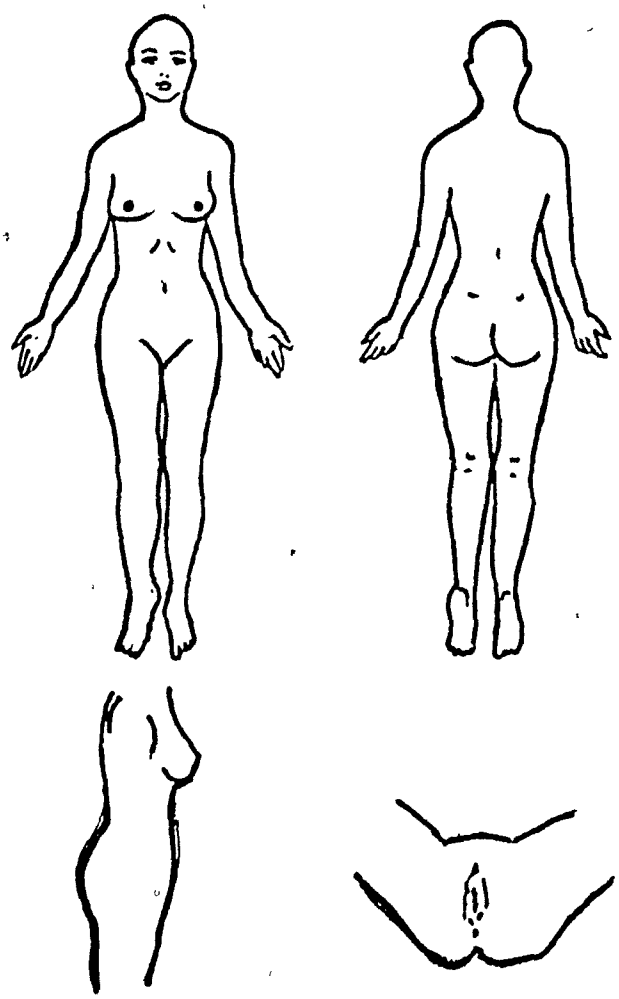
  Si oui, type:_____ dose:_____ heure:_____ am _____ pm

1. a) Où se situait la douleur?

D'abord, veuillez indiquer sur les dessins ci-après où se situait votre douleur, en faisant un cercle autour de la ou des régions douloureuses ou sensibles durant l'avortement. Si vous ressentiez de la douleur à plus d'un endroit, inscrivez "a" près de la région la plus douloureuse; "b" près de la région moins douloureuse; et ainsi de suite. Indiquez aussi pour chaque région si la douleur était profonde ou interne "I"; de surface ou externe "E"; ou les deux à la fois "EI". Finalement, veuillez noter l'intensité de la douleur pour chacune des régions à l'aide des lettres suivantes: V = vive; M = modérée; F = faible. (Voir l'exemple ci-bas)

e.g.





(Pour l'examinateur seulement:

1. Régions: ___p.dr. ___p.ga. ___p.c.c. ____abd.
   ___périn. ___dos ___autre:_____
2. Nombre de régions: ___)

1. b) Quelle était l'intensité de votre douleur durant l'avortement? Choisissez parmi les 6 mots suivants celui qui décrit le mieux ce que vous ressentiez. Faites un crochet (✓) à côté du mot choisi:

0 Pas de douleur ___
1 Faible ___
2 Inconfortable ___
3 Forte ___
4 Sévère ___
5 Insupportable ___

2. Votre douleur changeait-elle avec le temps?

a) Quel groupe de mots choisiriez-vous pour décrire votre douleur durant l'avortement? Veuillez cocher (√) un seul groupe.

1___ Continue, soutenue, constante.
2___ Rythmique, périodique, intermittente.
3___ Brève, momentanée, passagère.

b) Votre douleur changeait-elle de place? Oui___ Non ___

c) Votre douleur changeait-elle d'intensité? Oui___ Non ___

3. Dans l'ensemble, quelle était l'intensité de votre douleur? Parmi les 5 mots suivants, lequel décrit votre douleur au cours de l'avortement? Veuillez cocher (√) le mot approprié.

___ Pas de douleur
___ Faible
___ Modérée
___ Sévère
___ Insupportable

4. Que ressentiez-vous exactement comme douleur?

Lisez attentivement chacun des 20 groupes de mots qui décrivent différents sentiments et sensations. Choisissez les mots qui décrivent le mieux ce que vous ressentiez durant l'avortement. Utilisez un seul mot par case et laissez tomber les mots qui ne conviennent pas. Indiquez votre réponse en cochant (√) les mots qui expriment le mieux ce que vous ressentiez au cours de l'avortement.

1 Qui tremblotte Qui tremble Qui palpite Qui bat Qui elance Qui martèle	6 Qui tiraille Qui tire Qui tord	11 Fatiguante Épuisante	17 Qui s'etend Qui rayonne Qui rentre Qui transperce
2 Par secousse Brusque Fulgurante	7 Chaude Brûlante Bouillante Comme marqué au fer rouge	12 Écoeurante Étouffante	18 Raide Engourdie Tendue Qui serre Qui arrache
3 Qui pique Qui perce Qui penetre Qui poignarde	8 Qui fourmille Qui demange Cuisante Cinglante	13 Épeurante Effrayante Terrifiante	
4. Vive Aigue Déchirante	9 Sourde Douloureuse Drue Penible Poignante	14. Violente Éreintante Cruelle Tuante Torturante	19 Fraiche Froide Glacee
5 Qui pince Qui presse Qui ronge Qui crampe Qui ecrase	10 Sensible Crispee Qui écorche Qui fend	15 Déprimante Aveuglante 16 Agaçante Exaspérante Intense Horrible Intolérable	20 Énervante Dégoutante Épouvantable Atroce Agonisante

5. Quelle était l'intensité de votre douleur?

La ligne horizontale ci-dessous représente un "thermomètre de douleur" qui indique des degrés croissants d'intensité de douleur, allant de l'absence de douleur à une douleur insupportable. Veuillez indiquer l'intensité de la douleur que vous avez ressentie durant l'avortement en faisant un trait vertical à l'endroit approprié.

pas de douleur — douleur insupportable

6. Quelle est l'intensité de votre douleur MAINTENANT?

a) Veuillez indiquer l'intensité de la douleur que vous ressentez maintenant soit environ 10 à 15 minutes après l'avortement, en cochant (√) le mot qui décrit le mieux votre douleur présente.

___ Pas de douleur
___ Faible
___ Modérée
___ Sévère
___ Insupportable

b) Veuillez indiquer l'intensité de la douleur que vous ressentez maintenant sur la ligne ci-bas.

pas de douleur — douleur insupportable

7. Dans l'ensemble, est-ce que la douleur que vous avez effectivement ressentie durant l'avortement était pire, égale ou moindre que ce que vous anticipiez? Veuillez indiquer en faisant un trait à l'endroit approprié, combien différente de vos attentes était l'expérience réelle de douleur.

beaucoup moindre qu'anticipée — égale à celle anticipée — beaucoup pire qu'anticipée

II. Evaluation générale du programme - CONFIDENTIEL

Nous aimerions connaître vos impressions et avoir votre évaluation du programme de la clinique et de l'intervention que vous avez vécue. Soyez assurée de l'entière confidentialité et de l'anonymat de vos réponses qui seront scellées dans une enveloppe que seule la chercheuse ouvrira et étudiera.

1. Est-ce que l'avortement a été une intervention angoissante et difficile pour vous? Veuillez indiquer votre réponse sur le ligne ci-bas.

très peu angoissante — très angoissante et difficile

2. S'il y a lieu, est-ce que vous pensez que la présence de votre accompagnateur(trice) dans la salle d'avortement vous a aidé à mieux supporter la douleur ou l'inquiétude?

sa présence m'a nuit — sa présence m'a beaucoup aidé

3. a) Dans l'ensemble, vous êtes-vous sentie comprise par les membres de l'équipe médicale qui ont participé à votre avortement?

pas du tout — beaucoup

b) Vous êtes-vous sentie supportée et assistée par les membres de l'équipe?

pas du tout — beaucoup

c) Vous êtes-vous sentie en sécurité en ce qui concerne la compétence professionnelle de l'équipe?

pas du tout — beaucoup

3. d) Avez-vous été satisfaite des explications et des conseils que vous ont été donnés après l'avortement?

pas du tout ——————————————— beaucoup

4. a) Si vous appreniez qu'une amie ou un membre de votre famille devait avoir recours à un avortement, recommanderiez-vous cette clinique? Oui___ Non ___

b) Dans l'ensemble, comment évalueriez-vous la qualité des services et l'approche de cette clinique d'avortement? Veuillez cocher (✓) un mot.

___ Pauvre
___ Passable
___ Bonne
___ Très bonne
___ Excellente

5. Avant de quitter la clinique, veuillez indiquer combien de douleur vous ressentez maintenant (environ 30 minutes après l'avortement)

a) Lequel des 5 mots suivants décrit votre douleur présentement?

___ Pas de douleur
___ Faible
___ Modérée
___ Sévère
___ Insupportable

b) S'il-vous-plaît, indiquez l'intensité de la douleur que vous ressentez maintenant sur la ligne ci-dessous.

pas de douleur ——————————————— douleur insupportable

APPENDIX D

Medical Staff's Data Collection at Intervention

Date: _____
Code CLSC: _____
No. dossier: _____

II. Intervention

Mois__ __ Année __ __

		CODES DE VARIABLES
39. Examen: .Position de l'utérus	___	(1 = anté; 2 = rétro)
.Durée de la grossesse:	___ ___	(Nombre de semaines de gestation)
41. Code du médecin	___ ___	Code du médecin: 02 = P. Lauzon; 07 = D. Achin
42. Code de l'infirmière	___ ___	Code de l'infirmière: 01 = Denise Lapalme; 02 = Claire Vivier; 03 = Gisèle Lafrance; 04 = France Raquer; 05 = Mona; 06 = L. Morin; 07 = L. Labelle; 08 = S. Dragon
43. Procédure:		
1. Aspiration	___	(0 = non; 1 = oui)
2. Aspiration-curettage	___	(0 = non; 1 = oui)
44@48. Prémédication:		(0 = non; 1 = oui)
1. Sédatif	___	
2. Analgésique	___	
3. Atropine	___	
4. Antibiotique	___	
5. Autre: _____	___	
49. Infiltration cervicale et paracervicale:		
1. Xylocaïne (mg) ___ ___	___	(mg)
2. Epinéphrine	___	(0 = non; 1 = oui)
3. Autre: _____ (mg)	___	(mg)
50@53. Procédure supplémentaire:		
1. Enlever stérilet	___	(0 = non; 1 = oui)
2. Asp.et/ou curettage suppl.	___	
3. Extraction à la pince	___	
4. Autre: _____	___	
54@57. Accompagnée par:		
1. Partenaire	___	(0 = non; 1 = oui)
2. Ami(e)	___	
3. Membre de la famille	___	
4. Autre: _____	___	
58. Accompagnateur(trice) assiste à l'avortement:	___	(0 = non; 1 = oui)
59. Durée de l'avortement	___ ___	(Nombre de minutes du début de la dilatation à la fin de l'aspiration ou du curettage)
60. Examen du contenu aspiré:		
. Nombre de semaines du produit de conception	___ ___	
. Aspect du contenu	___	(0=normal; 1=anormal)

Date:_____
Code CLSC:_____
No. dossier:_____

II. Intervention (suite)

	CODES DE VARIABLES
61@70. Complications pendant l'avortement:	(0 = non; 1 = oui)
1. Réaction à la douleur ___	(Intolérance, demande d'arrêter, etc.)
2. Réaction vagale ___	(Bradycardie, chute TA, nausée, faiblesse, pâleur)
3. Hémorragie ___	(Plus de 250 ml)
4. Perforation de l'utérus ___	(Aspiration et/ou curettage)
5. Lacération cervicale ___	(Par tenaculum ou dilatation)
6. Avortement incomplet ___	(Quantité de membrane faible)
7. Réaction allergique ___	(Réaction cutanée au choc anaphylactique)
8. Crise émotive ___	(Panique, interruption ou difficulté)
9. Avortement non réussi ___	(Aucun matériel, impossibilité de dilater)
10. Autre:_____ ___	(e.g. convulsion, arrêt cardio-respiratoire, etc.)
71. Référence à l'hôpital ___	(0 = non; 1 = oui)
72. Insertion de stérilet ___	(0 = non; 1 = oui)
73@78. Médication au départ:	(0 = non; 1 = oui)
1. Analgésiques ___	
2. Antibiotiques ___	
3. Oxytociques ___	
4. Rhogham ___	
5. Anovulants ___	
6. Autre:_____ ___	

Nom du médecin:_____

Date: _____
Code CLSC: _____
No.Dossier: _____

QUESTIONNAIRE D'OBSERVATIONS PAR L'INFIRMIERE

Immédiatement après l'avortement:

1. Diriez-vous que la patiente a éprouvé durant l'avortement de la douleur ?

   a) Veuillez encercler le mot qui décrit le mieux l'intensité de la douleur observée.

   . aucune
   . faible
   . modérée
   . sévère
   . insupportable

   b) Faites un trait vertical sur la ligne çi-dessous à l'endroit qui indiquerait le mieux votre impression quant à l'intensité de la douleur.

pas de douleur _____ douleur insupportable

Dix (10) minutes après l'avortement:

2. Maintenant, veuillez indiquer combien de douleur semble éprouver la patiente environ 10 minutes après l'avortement, i.e. dès son départ pour la salle de repos.

   a) Encerclez le mot qui décrit le mieux l'intensité de la douleur observée.

   . aucune
   . faible
   . modérée
   . sévère
   . insupportable

   b) Faites un trait vertical sur la ligne çi-dessous à l'endroit qui indiquerait le mieux votre impression quant à l'intensité de la douleur.

pas de douleur _____ douleur insupportable

3. Avez-vous l'impression que la patiente ~~exprimait~~ sa souffrance émotive ? Veuillez indiquer votre impression sur la ligne çi-dessous.

elle était très sereine _____ elle était très souffrante émotivement

4. Avez-vous fait vous-même l'entrevue pré-avortement ? Oui____ Non____

Nom de l'infirmière: _____

APPENDIX E

Questionnaire d'évaluation personnelle - Visite de contrôle - CONFIDENTIEL

Nous vous demandons enfin de remplir ces derniers questionnaires afin de nous permettre d'explorer l'impact que l'expérience d'un avortement peut avoir sur le plan affectif.

a) Questionnaire d'évaluation personnelle (ASTA-AS)

Voici un certain nombre d'énoncés que les gens ont l'habitude d'utiliser pour décrire ce qu'ils ressentent. Lisez chaque énoncé, puis encerclez le chiffre approprié à droite de l'exposé pour indiquer comment vous vous sentez présentement . Ne vous attardez pas trop sur chaque énoncé mais donnez la réponse qui semble décrire le mieux les sentiments que vous éprouvez en ce moment.

		PAS DU TOUT	UN PEU	MODEREMENT	BEAUCOUP
1.	Je me sens calme	1	2	3	4
2.	Je me sens en sécurité	1	2	3	4
3.	Je suis tendue	1	2	3	4
4.	Je suis triste	1	2	3	4
5.	Je me sens tranquille	1	2	3	4
6.	Je me sens bouleversée	1	2	3	4
7.	Je suis préoccupée actuellement par des contrariétés possibles	1	2	3	4
8.	Je me sens reposée	1	2	3	4
9.	Je me sens anxieuse	1	2	3	4
10.	Je me sens à l'aise	1	2	3	4
11.	Je me sens sûre de moi	1	2	3	4
12.	Je me sens nerveuse	1	2	3	4
13.	Je suis affolée	1	2	3	4
14.	Je me sens sur le point d'éclater	1	2	3	4
15.	Je suis relaxée	1	2	3	4
16.	Je me sens heureuse	1	2	3	4
17.	Je suis préoccupée	1	2	3	4
18.	Je me sens surexcitée et fébrile	1	2	3	4
19.	Je me sens joyeuse	1	2	3	4
20.	Je me sens bien	1	2	3	4

b) Questionnaire d'évaluation personnelle (ASTA-TA) - CONFIDENTIEL

Voici un certain nombre d'énoncés que les gens ont l'habitude d'utiliser pour se décrire. Lisez chaque énoncé, puis encerclez le chiffre approprié à droite de l'exposé pour indiquer comment vous vous sentez en général. Ne vous attardez pas trop sur chaque énoncé mais donnez la réponse qui vous semble décrire le mieux les sentiments que vous éprouvez de façon générale .

	PRESQUE JAMAIS	QUELQUEFOIS	SOUVENT	PRESQUE TOUJOURS
1. Je me sens bien	1	2	3	4
2. Je me fatigue rapidement	1	2	3	4
3. Je me sens au bord des larmes	1	2	3	4
4. Je souhaiterais être aussi heureux que les autres semblent être	1	2	3	4
5. Je perds de belles occasions parce que je n'arrive pas à me décider assez rapidement	1	2	3	4
6. Je me sens reposée	1	2	3	4
7. Je suis calme, tranquille et en paix	1	2	3	4
8. Je sens que les difficultés s'accumulent au point que je ne peux pas en venir à bout	1	2	3	4
9. Je m'en fais trop pour des choses qui n'en valent pas vraiment la peine	1	2	3	4
10. Je suis heureuse	1	2	3	4
11. Je suis portée à prendre mal les choses	1	2	3	4
12. Je manque de confiance en moi	1	2	3	4
13. Je me sens en sécurité	1	2	3	4
14. J'essaie d'éviter de faire face à une crise ou à une difficulté	1	2	3	4
15. Je me sens mélancolique	1	2	3	4
16. Je suis contente	1	2	3	4
17. Des idées sans importance me passent par la tête et me tracassent	1	2	3	4
18. Je prends les désapointements tellement à coeur que je n'arrive pas à me les sortir de la tête	1	2	3	4
19. Je suis une personne stable	1	2	3	4
20. Je deviens tendue et bouleversée quand je songe à mes préoccupations actuelles	1	2	3	4

c) Questionnaire d'évaluation personnelle (IBD) - CONFIDENTIEL

Ceci est un questionnaire contenant plusieurs groupes de phrases. Pour chacun des groupes, lisez attentivement toutes les phrases et placez un crochet (√) à côté de la phrase qui décrit le mieux comment vous vous sentez dans le moment présent ou depuis votre avortement. Choisissez une seule phrase pour chacun des groupes.

1. ____ Je ne me sens pas triste.
____ Je me sens morose ou triste.
____ Je suis morose ou triste tout le temps et je ne peux pas me remettre d'aplomb.
____ Je suis tellement triste ou malheureuse que cela fait mal.
____ Je suis tellement triste ou malheureuse que je ne peux plus le supporter.

2. ____ Je ne suis pas particulièrement pessimiste ou découragée à propos du futur.
____ Je me sens découragée à propos du futur.
____ Je sens que je n'ai plus rien à attendre du futur.
____ Je sens que je n'arriverai jamais à surmonter mes difficultés.
____ Je sens que le futur est sans espoir et que les choses ne peuvent pas s'améliorer.

3. ____ Je ne sens pas que je suis un échec.
____ Je sens que j'ai échoué plus que la moyenne des gens.
____ Je sens que j'ai accompli très peu de choses qui aient de la valeur ou une signification quelconque.
____ Quand je pense à ma vie passée, je ne peux voir rien d'autre qu'un grand nombre d'échecs.
____ Je sens que je suis un échec complet en tant que personne (parent, femme).

4. ____ Je ne suis pas particulièrement mécontente.
____ Je me sens tannée la plupart du temps.
____ Je ne prend pas plaisir aux choses comme auparavant.
____ Je n'obtiens plus de satisfaction de quoi que ce soit.
____ Je suis mécontente de tout.

5. ____ Je ne me sens pas particulièrement coupable.
____ Je me sens souvent mauvaise ou indigne.
____ Je me sens plutôt coupable.
____ Je me sens mauvaise et indigne presque tout le temps.
____ Je sens que je suis très mauvaise ou très indigne.

6. ____ Je n'ai pas l'impression d'être punie.
____ J'ai l'impression que quelque chose de malheureux peut m'arriver.
____ Je sens que je suis ou serai punie.
____ Je sens que je mérite d'être punie.
____ Je veux être punie.

7. ____ Je ne me sens pas déçue de moi-même.
____ Je suis déçue de moi-même.
____ Je ne m'aime pas.
____ Je suis dégoûtée de moi-même.
____ Je me hais.

8. ____ Je ne sens pas que je suis pire que les autres.
____ Je me critique pour mes faiblesses et mes erreurs.
____ Je me blâme pour mes fautes.
____ Je me blâme pour tout ce qui arrive de mal.

9. ____ Je n'ai aucune idée de me faire du mal.
____ J'ai des idées de me faire du mal mais je ne les mettrais pas à exécution.
____ Je sens que je serais mieux morte.
____ Je sens que ma famille serait mieux si j'étais morte.
____ J'ai des plans bien définis pour un acte suicidaire.
____ Je me tuerais si je le pouvais.

10. ____ Je ne pleure pas plus que d'habitude.
____ Je pleure plus maintenant qu'auparavant.
____ Je pleure tout le temps maintenant. Je ne peux pas m'arrêter.
____ Auparavant, j'étais capable de pleurer mais maintenant je ne peux pas pleurer du tout, même si je le veux.

11. ____ Je ne suis pas plus irritée maintenant que je le suis d'habitude.
____ Je deviens contrariée ou irritée plus facilement maintenant qu'en temps ordinaire.
____ Je me sens irritée tout le temps.
____ Je ne suis pas irritée du tout par les choses qui m'irritent habituellement.

12. ____ Je n'ai pas perdu intérêt aux autres.
____ Je suis moins intéressée aux autres maintenant qu'auparavant.
____ J'ai perdu la plupart de mon intérêt pour les autres et j'ai peu de sentiment pour eux.

13. ____ Je prends des décisions aussi bien que jamais.
____ J'essaie de remettre à plus tard mes décisions.
____ J'ai beaucoup de difficultés à prendre des décisions.
____ Je ne suis pas capable de prendre de décisions du tout.

14. ____ Je n'ai pas l'impression de paraître pire qu'auparavant.
____ Je m'inquiète de paraître vieille et sans attraits.
____ Je sens qu'il y a des changements permanents dans mon apparence et que ces changements me font paraître sans attraits.
____ Je me sens laide et répugnante.

15. ____ Je peux travailler pratiquement aussi bien qu'avant.
____ J'ai besoin de faire des efforts supplémentaires pour commencer à faire quelque chose.
____ Je ne travaille pas aussi bien qu'avant.
____ J'ai besoin de me pousser très fort pour faire quoi que ce soit.
____ Je ne peux faire aucun travail.

16. ____ Je peux dormir aussi bien que d'habitude.
____ Je me réveille plus fatiguée le matin que d'habitude.
____ Je me réveille 1-2 heures plus tôt que d'habitude et j'ai de la difficulté à me rendormir.
____ Je me réveille tôt chaque jour et je ne peux dormir plus de 5 heures.

17. ____ Je ne suis pas plus fatiguée que d'habitude.
____ Je me fatigue plus facilement que d'habitude.
____ Je me fatigue à faire quoi que ce soit.
____ Je suis trop fatiguée pour faire quoi que ce soit.

18. ____ Mon appétit est aussi bon que d'habitude.
____ Mon appétit n'est pas aussi bon que d'habitude.
____ Mon appétit est beaucoup moins bon maintenant.
____ Je n'ai plus d'appétit du tout.

19. ____ Je n'ai pas perdu beaucoup de poids dernièrement.
____ J'ai perdu plus de 5 livres.
____ J'ai perdu plus de 10 livres.
____ J'ai perdu plus de 15 livres.

20. ____ Je ne suis pas plus préoccupée de ma santé que d'habitude.
____ Je suis préoccupée par des maux et des douleurs, ou des problèmes de digestion ou de constipation.
____ Je suis tellement préoccupée par ce que je ressens ou comment je me sens qu'il est difficile pour moi de penser à autre chose.
____ Je pense seulement à ce que je ressens ou comment je me sens.

21. ____ Je n'ai noté aucun changement récent dans mon intérêt pour le sexe.
____ Je suis moins intéressée par le sexe qu'auparavant.
____ Je suis beaucoup moins intéressée par le sexe maintenant.
____ J'ai complètement perdu mon intérêt pour le sexe.

Physicians' Follow-up Questionnaire

Date: _____
Code CLSC: _____
No. dossier: _____

III. Visite de contrôle

		CODES DE VARIABLES
79. Nombre de jours après l'avortement	__ __	
80. Nature du contact:		
1. Visite	__	
2. Téléphone	__	
81@86. Complications:		(0 = non; 1 = oui)
1. Endométrite	__	
2. Hémorragie	__	
3. M.I.P.	__	
4. Avortement incomplet	__	
5. Grossesse extra-utérine	__	
6. Autre: _____	__	
87. Date d'apparition des complications	__ __ __	(Nombre de jours après l'avortement)
88. Hospitalisation pour complications	__	(0 = non; 1 = oui)
89. Nombre de jours de l'hospitalisation	__ __	
90@98. Contraception retenue:		(0 = non; 1 = oui)
1. Anovulants	__	
2. Stérilet	__	
3. Diaphragme	__	
4. Cap	__	
5. Spermicide	__	
6. Condom	__	
7. Observation du cycle	__	
8. Pilule du lendemain	__	
9. Autre: _____	__	
99. Follow-up social suggéré	__	(0 = non; 1 = oui)

Nom du médecin: _____

APPENDIX F

A study of the validity of the French version of the MPQ: comparability data with the "Questionnaire d'Auto-Evaluation de la Douleur" (QDSA)

A. Objective and Method

The goal of this study was to examine the validity of the French version of the MPQ (Veilleux) by comparing the responses obtained on the French MPQ and on another pain questionnaire recently developed, the QDSA. To accomplish this, without taxing the energies of the subjects, a subsample of 43 women who participated in the study during its last few months was given both the QDSA and the MPQ in counterbalanced order as part of the post-abortion assessment. These patients were also asked which list provided the best description of their experience and were invited to explain some of the reasons for their preferences. All the analyses reported here are based on the pool of 43 subjects.

B. Development and Characteristics of the QDSA

The "Questionnaire d'Auto-Evaluation de la Douleur de Saint-Antoine" (QDSA) (p. 2) evolved from an attempt to adapt the McGill Pain Questionnaire (MPQ) for a European French population. Boureau and his co-workers (1984) replicated the experiments that had led to the MPQ (Melzack & Torgerson, 1971) rather than undertake the validation of already existing versions that originated in Canada. They used groups of patients, students and physicians to classify a list of pain words obtained from clinical interviews and from the literature on pain into categories. The QDSA questionnaire consists of 61 words grouped in 17 categories: nine sensory categories, six affective categories and one evaluative category of descriptors. In addition, an intensity rating scale is used to assign a weight to each attribute selected.

QUESTIONNAIRE D'AUTO-EVALUATION DE LA DOULEUR (Q.D.S.A.)

Heure:_____ Date:_____

Nom du patient:_____ Examinateur _____

Analgésiques: Type:_____ Dose:_____ Heure:_____AM___ PM___

(I) Lire attentivement chaque mot sans en oublier aucun. Chaque mot doit être considéré indépendamment. Indiquez par une croix dans la première case les mots qui correspondent à votre douleur durant l'avortement et que vous comprenez bien.

(II) Lorsque dans un groupe de mots plusieurs mots ont été cochés, indiquez par une seconde croix dans la deuxième case le mot le plus exact pour exprimer votre douleur au cours de l'avortement.

(III) Afin de préciser votre douleur au cours de l'avortement, donnez une note dans la troisième case à chaque mot choisi en utilisant le code suivant:

0	1	2	3	4
Absent Pas du tout	Faible Un peu	Modéré Moyennement	Fort Beaucoup	Extrêmement Fort Extrêmement

A.	Battements.....	___	___	___	H.	Picotements.....	___	___	___
	Pulsations.....	___	___	___		Fourmillements .	___	___	___
	Elancements.....	___	___	___		Démangeaisons...	___	___	___
	En éclairs.....	___	___	___					
	Décharges électriques.	___	___	___	I.	Engourdissements	___	___	___
	Coups de marteau.....	___	___	___		Lourdeur.....	___	___	___
						Sourde.....	___	___	___
B.	Rayonnante.....	___	___	___					
	Irradiante.....	___	___	___	J.	Fatigante.....	___	___	___
						Epuisante.....	___	___	___
C.	Piqûre.....	___	___	___		Ereintante.....	___	___	___
	Coupure.....	___	___	___	K.	Nauséeuse.....	___	___	___
	Pénétrante	___	___	___		Suffocante.....	___	___	___
	Transperçante.....	___	___	___		Syncopale.....	___	___	___
	Coups de poignard.....	___	___	___					
					L.	Inquiétante.....	___	___	___
D.	Pincement.....	___	___	___		Oppressante.....	___	___	___
	Serrement.....	___	___	___		Angoissante.....	___	___	___
	Compression.....	___	___	___					
	Ecrasement.....	___	___	___	M.	Harcelante.....	___	___	___
	En étau.....	___	___	___		Obsédante..... .	___	___	___
	Broiement.....	___	___	___		Cruelle.....	___	___	___
						Torturante.....	___	___	___
E.	Tira'llement.....	___	___	___		Suppliciante....	___	___	___
	Etirement	___	___	___					
	Distension.....	___	___	___	N.	Gênante.....	___	___	___
	Déchirure.....	___	___	___		Désagréable.....	___	___	___
	Torsion.....	___	___	___		Pénible..... ...	___	___	___
	Arrachement.....	___	___	___		Insupportable...	___	___	___
F.	Chaleur.....	___	___	___	O.	Enervante.....	___	___	___
	Brûlure.....	___	___	___		Exaspérante.....	___	___	___
						Horripilante....	___	___	___
G.	Froid.....	___	___	___	P.	Déprimante.....	___	___	___
	Glace....	___	___	___		Suicidaire.....	___	___	___

C. Comparison of Characteristics of Pain Description

i. Qualitative Characterisics on the QDSA and MPQ.

The words chosen by 33% and more of the subjects to describe their pain during the abortion procedure on the QDSA and the MPQ are listed in Table 34-F. Table 35-F displays the subjects' response profile on the 16 categories of the QDSA and on their corresponding categories on the MPQ as proposed by Boureau et al., (1984), as well as the percentages of subjects who gave consistent responses (i.e., choosing words in matching categories or none at all). The important feature revealed by these data is the high correspondence in classes selected: 70% or more of subjects gave consistent responses on 12 of the 18 categories of words. Overall, remarkably similar responses were obtained on the two questionnaires: more than 80% of women chose, on the QDSA, at least four sensory descriptors (e.g., "élancement", "pincement", "piqûre", "tiraillement") and one evaluative word (e.g., "désagréable"), and selected on the MPQ at least three sensory descriptors (e.g., "qui élance", "qui crampe", "qui tiraille") and a word in the evaluative category (e.g., "agaçante"). Furthermore, between- and within-questionnaire comparisons (see Table 36-F) of words chosen per dimension revealed virtually no differences in qualitative features. Together the similarity in patterns of word frequency, and the high level of consistency in categories of descriptors selected suggest that both questionnaires yielded comparable responses.

ii. Quantitative Characteristics on the QDSA and MPQ.

The quantitative measures of pain derived from both questionnaires are found in Table 37-F. Two types of pain intensity ratings were obtained from the QDSA: the Pain Rating Indices (QPRI's) calculated from the sum of the rank values of the words chosen (similar to the MPQ PRI scores) and the Pain Rating Indices derived from the given values assigned by the patient to each descriptor chosen (QPRIG's). Table 37-F presents the mean QDSA Rank Scores and Given Scores for each dimension, and their

TABLE 34-F

Pain Descriptors Chosen by 33% or More of Subjects on the QDSA and the French Version of the MPQ (n = 43)

	QDSA		MPQ	
Sensory	"Elancement"	(51%)	"Qui tremble"	(44%)
			"Par secousse"	(44%)
	"Piqûre"	(42%)		
	"Pincement"	(42%)		
			"Qui crampe"	(58%)
	"Chaleur"	(37%)		
			"Crispée"	(35%)
Affective	"Fatiguante"	(42%)	"Fatiguante"	(47%)
	"Inquiétante"	(42%)		
	"Enervante"	(56%)		
Evaluative	"Désagréable"	(35%)	"Agaçante"	(44%)
(Miscellaneous)			"Enervante"	(49%)

TABLE 35-F

Correspondence of the QDSA and the MPQ Categories of Pain Descriptors: Frequency (%) of Use of the Categories and of Consistent Responses (n = 43)

Dimension	Category[a]		QDSA (%)		MPQ (%)	Consistency (%)
Sensory	Temporal	1	95.3	1	95.3	90.7
	Spatial	2	27.9	2	79.1	44.2
				17	67.4	55.8
	Puncture	3	93.0	3	86.0	83.7
				4	55.8	58.1
				17	67.4[b]	69.8
	Compression	4	90.7	5	93.0	88.3
	Distension	5	83.7	6	79.1	86.0
	Thermal	6	51.2	7	44.2	83.7
	Thermal	7	39.5	19	37.2	74.4
	Paraesthesias	8	41.9	8	32.6	37.6
	Dullness	9	65.1	9	62.8	55.9
Affective	Fatigue	10	74.4	11	67.4	93.0
	Autonomic	11	25.6	12	27.9	79.1
	Anxiety	12	74.4	13	46.5	62.8
	Punishment	13	32.6	14	39.5	79.1
	Tension	15	67.4	20	65.11	88.4
	Depression	16	23.3	15	23.3	86.1
Evaluative	Tolerance	14	83.7	16	83.7	86.6
				10	74.4[c]	--
				18	76.7[c]	--

Note a: Key words and correspondence between categories are from Boudreau et al., (1984)

Note b: Category 17 of the MPQ was matched with categories 2 and 3 of the QDSA because it contains words that depict both spatial and punctuate qualities.

Note c: Categories 10 and 18 of the MPQ do not reveal any clear correspondence with any of the QDSA subclasses.

TABLE 36-F

Means and Standard Deviations of the Absolute and Relative[a] Number of Words Chosen on the QDSA and the MPQ in Each Division (n = 43)

	QDSA				MPQ			
	Absolute # of Words		Relative # of Words		Absolute # of Words		Relative # of Words	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Sensory	5.9	1.9	0.7	.02	7.0	2.2	0.7	0.2
Affective	3.0	1.8	0.5	0.3	2.1	1.8	0.4	0.4[b]
Evaluative	0.8	0.4	0.8	0.4	0.8	0.4	0.8	0.4
Total	9.7	3.4	0.6	0.2	12.4	4.7	0.6	0.2

Note a: Relative numbers refer to the number of words chosen, divided by the maximum number possible per dimension.

Note b: When the Miscellaneous-Affective words are included, the absolute mean number of Affective words chosen on the MPQ is 2.7 ± 2.0 (in relative number: 0.5 ± 0.3).

TABLE 37-F

Means and Standard Deviations of the Pain Rating Indices of the QDSA (Given and Rank Scores) and Comparisons of Rank Scores[a] Between the QDSA and the MPQ (n = 43)

	QDSA								MPQ					
	Given Score				Rank Score				Rank Score					
	Absolute		Proportional		Absolute		Proportional		Absolute		Proportional		Test Value	p
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	df = 42	
Sensory	13.1	5.7	0.4	0.2	12.1	5.1	0.4	0.2	15.9	7.4	0.4	0.2	t = -1.56	ns
Affective	7.1	5.1	0.3	0.2	4.8	3.7	0.3	0.2	3.2	3.4	0.2	0.3	t = 1.15	ns
Evaluative	2.2	1.3	0.6	0.3	2.2	1.3	0.6	0.2	1.8	1.5	0.4	0.3	t = 3.43	.01[b]
TOTAL	22.5	11.0	0.4	0.2	19.1	8.8	0.3	0.3	26.9	14.4	0.3	0.2	t = 1.00	ns

Note a: Statistical tests on the rank scores between questionnaires were calculated from their proportional expressions.

Note b: Proportional scores for the Evaluative dimension revealed a significant difference between questionnaires while the Absolute scores did not (t = 1.55, p = ns), presumably because of the different ranks assigned to adjectives of similar intensity e.g., "Désagréable" on the QDSA has a rank score of 2 out of 4 (0.5), while "Agaçante" on the MPQ has a rank score of 1 out of 5 (0.2).

proportional expressions for clearer comparison (i.e., mean scores divided by the maximum score possible per dimension). Also displayed are the MPQ Pain Rating Index Scores, their proportional expression, as well as the results of between-questionnaire comparison tests. It is clear from this table that the two ratings of the QDSA show a remarkable resemblance to the MPQ scores, in that they all reveal the predominance of sensory over affective descriptors of pain. Moreover, the product-moment correlation coefficients shown in Table 38-F further reveal that QDSA scores significantly correlated with MPQ measures.

Taken together, these results indicate a striking similarity in word frequency and pain scores derived from the QDSA and the French MPQ, and hence provide support for the concurrent validity of this French version of the MPQ.

Punctate, constrictive and traction pain sensations were most frequently chosen to describe the experience of pain during abortion. Sixty percent of the participants reported that they preferred the QDSA and suggested that it was somehow more "precise" and "definite" than the MPQ. The reasons for this impression may stem from the fact that, while the QDSA contains one category of punctate-incisive descriptors (e.g., Ca.3: "piqûre"-"coups de poignards"), the MPQ has three categories of words which describe these aspects (Ca.3: "qui pique" (pricking)-"qui poignarde" (stabbing); Ca.4: "déchirante" (lacerating); and Ca.17: "qui transperce" (piercing)). It is possible that the larger number of words and categories to choose from in the MPQ, explains why, when compared to the QDSA, the MPQ appeared to provide less "definite" descriptions of pain. However, many participants indicated that the French version of the MPQ offered more vivid and colorful words, possibly because some expressions resemble colloquial French in Quebec.

TABLE 38-F

Product-Moment Correlations Between the Pain Rating Indices of the QDSA and the MPQ for Each Dimension (n = 43)

Dimension	QDSA	
	Rank Score	Given Score
MPQ Rank Score		
Sensory	.65***	.71***
Affective	.80***	.75***
Evaluative	.40***	.50***
Total	.80***	.52***

Asterisks indicate the level of significance (based on two-tailed probability levels): *** $p < 0.001$.

Overall, the comparability data of the QDSA and the French version of the MPQ tend to confirm the concurrent validity of this translation of the MPQ. Interestingly, the present analysis indicates, as Melzack and Wall (1982) maintain, that the MPQ remains an experimental tool that may need to be revised and refined, and suggest that the development of a shortened form of the MPQ may be a fruitful area of research.

APPENDIX G

TABLE 39G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Present Pain Intensity (PPI)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.24	.07	.07	2,106	4.09	.02	-.06	0.53	ns
Age	-.24						-.02	0.05	ns
Depression (BDI-1)	.29	.15	.08	3,105	6.01	.001	.19	5.26	.02
Moral Dilemma[b]	-.28[b]	.20	.05	4,104	6.40	.000	-.25[b]	8.89	.003
Dysmenorrhea	.32	.25	.05	5,103	6.70	.000	.21	6.10	.02
Retroversed Uterus	.23	.28	.03	6,102	6.63	.000	.18	4.51	.04
Anesthetic Dosage	-.24	.30	.02	7,101	6.08	.000	-.13	2.27	ns

Note b: Issues of concern are inversely-coded variables.

TABLE 40-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Evaluative Pain Rating (PRIE)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.09	.02	.02	2,106	1.05	ns	-.04	0.18	ns
Age	-.14						.02	0.06	ns
Depression (BDI-1)	.26	.08	.06	3,105	3.03	.03	.10	1.31	ns
Anesthetic Dosage	-.26	.12	.04	4,104	3.47	.01	-.18	3.96	.05
Concern About Others' Judgement	-.22[b]	.15	.03	5,103	3.62	.004	-.21[b]	5.60	.02
State-Anxiety (STAIS-1)	.24	.18	.03	6,102	3.69	.002	.17	3.60	ns[a]

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.06$).

Note b: Issues of concern are inversely-coded variables.

TABLE 41-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Standard Verbal Pain Rating (SPS1)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.34	.16	.16	2,106	10.22	.000	-.13	2.53	ns
Age	-.38						-.16	2.57	ns
Trait-Anxiety[a] (STAIT-a)	.31	.23	.07	3,105	10.40	.000	.20	4.28	.04
State-Anxiety (STAIS-1)	.29	.26	.03	4,104	9.15	.000	.20	4.17	.04
Dysmenorrhea	.28	.29	.03	5,103	8.31	.000	.18	3.51	ns[b]
Presence of a Friend	.21	.31	.02	6,102	7.36	.000	.14	2.16	ns

Note a: Trait-Anxiety (STAIT-2) collected at follow-up with mean substitution of missing values.

Note b: The test of the partial correlation coefficient revealed a marginally significant contribution ($p = 0.06$).

TABLE 42-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain Thirty Minutes After Abortion: Standard Verbal Pain Rating (SPS3)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.29	.11	.11	2,106	6.28	.002	-.02	0.07	ns
Age	-.30						-.13	2.19	ns
Companion in Operating Room	.28	.17	.06	3,105	7.14	.000	.29	11.47	.001
Presence of Partner	-.12	.20	.03	4,104	6.63	.000	-.19	5.05	.02
Dysmenorrhea	.28	.23	.03	5,103	6.19	.000	.17	3.72	.05
Moral Dilemma[b]	-.16[b]	.25	.02	6,102	5.73	.000	-.14[b]	2.86	ns[a]

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = .0.09$).

Note b: Issues of concern are inversely-coded variables.

TABLE 43-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain in Abortion: Observers' Visual Analogue Score (ObPVAS1)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.21	.05	.05	2,106	2.77	ns	-.08	0.80	ns
Age	-.20						-.08	0.97	ns
Gestational Age	-.15	.09	.04	3,105	3.49	.02	-.15	2.76	ns[a]
Retroversed Uterus	.23	.12	.03	4,104	3.55	.01	.17	3.80	.05
Depression (BDI-1)	.19	.14	.02	5,103	3.47	.01	.14	2.48	ns
Moral Dilemma[b]	-.17[b]	.16	.02	6,102	3.31	.01	-.14[b]	2.31	ns

Note a: The test of the partial correlation coefficient revealed a marginally significant contribution to the prediction ($p = 0.08$).

Note b: Issues of concern are inversely-coded variables.

TABLE 44-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Pain Fifteen Minutes After Abortion: Observers' Visual Analogue Pain Score (ObPVAS2)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.28	.13	.13	2,106	7.94	.001	-.001	.00	ns
Age	-.36						-.14	2.83	ns[a]
Dysmenorrhea	.30	.17	.04	3,105	7.16	.000	.19	4.75	.03
Moral Dilemma[b]	-.22[b]	.20	.03	4,104	6.60	.000	-.24[b]	7.89	.005
Presence of Partner	-.20	.23	.03	5,103	6.27	.000	-.21	6.00	.02
Companion in Operating Room	.10	.25	.02	6,102	5.68	.000	.15	3.12	ns[a]
Concern About Others' Judgement	-.09[b]	.27	.02	7,101	5.28	.000	-.13[b]	2.41	ns

Note a: Tests of the individual regression coefficients revealed marginally significant contribution to prediction ($p = 0.09$ and 0.08, respectively).

Note b: Issues of concern are inversely-coded variables.

TABLE 45-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Distress in Abortion: Observers' Visual Analogue Distress Score (ObDVAS)

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	-.10	.02	.02	2,106	1.29	ns	.07	0.75	ns
Age	-.15						-.11	0.75	ns
Moral Dilemma[b]	-.40[b]	.17	.15	3,105	7.46	.000	-.25[b]	9.77	.000
State-Anxiety (STAIS-1)	.37	.26	.09	4,104	9.28	.000	.16	3.79	.05
Hesitation Present	.40	.30	.04	5,103	8.77	.000	.13	2.73	ns
Presence of Partner	-.09	.32	.02	6,102	7.87	.000	-.16	3.85	.05
Ambivalence in Decision	.38	.34	.02	7,101	7.19	.000	.12	2.53	ns
Gestational Age	-.10	.35	.01	8,100	6.67	.000	-.12	2.33	ns

Note b: Issues of concern are inversely-coded variables.

N.B. The regression analysis calculated to partial out the contribution made by Pain Intensity (ObPVAS1) revealed that 49% of the variance in the observers' distress ratings were accounted for by the following variables: covariates (partial r = -.12 and .06, p = ns), Pain Intensity (partial r = .39, $p < 0.001$), Hesitation (partial r = .12, p = .08), Moral Dilemma (partial r = -.20, $p < 0.01$), Presence of Partner (partial r = -.18, $p < 0.05$), Ambivalence (partial r = .14, p = 05), State-Anxiety (partial r = .14, p = 05). Thus, 27% of the variance of the observers' ratings of distress was explained by Ambivalence, Moral conflicts, Situational Anxiety and the Partner's absence, and 20% by the Observed Pain levels during the procedure.

TABLE 46-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Satisfaction Ratings, Including Pain Intensity at Assessment: Understanding from Clinical Staff

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	.34	.11	.11	2,106	6.84	.002	.23	7.59	.006
Age	.20						-.06	1.29	ns
Tolerance to Pain	.31	.20	.09	3,105	8.55	.000	.22	7.37	.008
Affective Pain Rating Index (PRIA)	-.36	.25	.05	4,104	10.51	.000	-.27	8.15	.005

TABLE 47-G

Results of the Hierarchical Stepwise Regression Analysis to Determine the Statistical Predictors of Satisfaction Ratings, Including Pain Intensity at Assessment: Support from Clinical Staff

Predictor Variable	Pearson r	Multiple R^2	Change in R^2	df	F	p	Partial r	F	p
Covariates									
Education	.33	.11	.11	2,106	6.32	.003	.23	7.34	.008
Age	.20						.03	0.16	ns
Depression (BDI-1)	-.23	.16	.05	3,105	6.54	.000	-.21	5.84	.02
Tolerance to Pain	.24	.19	.03	4,104	6.10	.000	.12	1.99	ns
State-Anxiety (STAIS-1)	-.00	.21	.02	5,103	5.41	.000	.22	6.51	.01
Hesitation Present	-.26	.25	.04	6,102	5.51	.000	-.20	5.32	.02
Expectancy of Pain	-.19	.26	.01	7,101	5.16	.000	-.14	2.52	ns