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A comparison of three methods of eliciting sensitive information from female adolescents

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A Comparison of Three Methods of Eliciting

Sensitive Information from Female Adolescents

by

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ABSTRACT

The current study was designed to examine response bias in female adolescents as a function of three methods of eliciting sensitive information: 1) face-to-face interviews (Group I), 2) self-administered questionnaires (Group Q), and 3) interactive computer interviews (Group C). It was hypothesized that computer interviews and questionnaires, which do not require the respondent to interact directly with another person, would be less likely to generate response bias, or socially desirable responses from subjects than would face-to-face interviews. A secondary purpose was to examine adolescents' responses to pelvic examinations. Subjects were 108 female adolescents (ages 14 to 20), who were patients at an adolescent medical clinic. Subjects were randomly assigned to one of the three conditions (Group I, Q or C), and queried about their health history and habits, gynecological and sexual history, and their affective expectations and experience of pelvic examinations. Questions about the pelvic examination focused on examining adolescents' sources of anxiety about pelvic examinations. Results showed that condition (method of data collection)

was not significantly associated with variations in response on questions designed to tap social norms, but was associated with significant differences in reporting of affective responses to the pelvic examination. Subjects in Group I were significantly less likely to report feeling self-conscious about pelvic examinations, and more likely to report having positive feelings about the procedure. Although mean differences in the reporting of socially undesirable behaviors were not significant, the percentage of subjects who acknowledged engaging in undesirable behaviors was lowest in the face-to-face interview condition. The results suggest that mode of administration has predictable, but small effects on respondents reporting behavior. The results of the pelvic study showed that adolescents' various concerns about pelvic examinations were highly associated with reports of anxiety prior to, during and following the examination. Fear of pain was the concern most highly associated with anxiety.

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INTRODUCTION

Researchers and clinicians in the health field have long been concerned about the reliability and validity of the information they acquire from patients. Accurate information from patients, particularly in the absence of laboratory data, is essential in many diagnostic and treatment activities. In health research, results generated from questionable data may be invalid and lead to serious problems when diagnostic and treatment procedures, policy decisions, or subsequent research directions follow their lead.

Efforts to cope with the problem have prompted investigators to examine factors which may be associated with variations in reporting behavior.

Among the task variables which have been studied, two appear to have consistently large effects on respondent behavior; 1) the nature of the question asked, and 2) the method of administering the question. Questions which are personal or threatening, and those for which there exists the possibility of a socially desirable answer elicit more response bias than do more neutral questions (Sudman & Bradburn, 1974). This suggests that

studies of particularly sensitive topics such as human sexuality could be expected to have a greater potential for eliciting response bias than would studies on more neutral topics.

In terms of the method of administering questions, it seems reasonable to consider situations which increase the salience of social norms to be particularly prone to response bias. Hyman (1954) argues that the interviewing situation functions this way by increasing ones sense of social involvement. If it is true that the salience of social norms are increased in the face-to-face situation, then questionnaires, which require no direct revelation of self to another person should be less subject to problems of self-presentation, and less subject to response bias when sensitive questions are asked.

The limited number of studies which have directly compared questionnaires or other self-administered methods with face-to-face interviews support this hypothesis. The tendency of individuals to respond in more socially desirable directions in face-to-face interactions has been documented in studies of health reporting (Hochstim, 1963, 1967; Knudsen, Pope & Irish, 1967; Thorndike, Hagen & Kemper, 1952), religious-ethical issues (Sudman, Greeley & Pinto, 1965), attitudes towards love (Ellis, 1947), and job satisfaction (Kahn, 1952, cited in Sudman & Bradburn, 1974).

In a comprehensive review of the literature on response effects, Sudman and Bradburn (1974) conclude that issues of self-presentation are among the most important factors influencing respondent reporting behavior. The implications of these findings are particularly salient when one considers topic areas which consume a great deal of research energy and which also may be particularly prone to response bias. For example, in recent years, adolescent sexuality has generated substantial interest among behavioral and medical scientists. The significance of this topic rests, in part, on the magnitude of problems such as adolescent pregnancy and sexually transmitted disease and their associated medical, economic, political, social and psychological sequelae. Given this, the application of our current knowledge about response effects to the study of adolescent sexuality would seem to be an appropriate and important consideration.

Furthermore, an awareness of the developmental tasks of adolescence suggests that issues pertaining to self-presentation may be of particular importance during the adolescent years. During the period of adolescence, issues of one's identity predominate as young people learn to define and accept their changing physiques, their sexual role identity, their moral convictions, the limits of their dependence and independence, and their place in so-

ciety (Kohlberg, 1963; Blos, 1962; Erikson, 1950, 1963). The developmental task of identity formation during adolescence requires extentive social comparison processes. For this reason, adolescence has been viewed as a stage of heightened self-awareness (Rosenberg, 1965; Ausubel, Montemayor & Svajian, 1977) during which time the young person is highly dependent on the evaluation that others have of him/her (Offer, 1969). An increased dependence on others evaluations suggests that impression management would be heavily practiced during this stage of life. Furthermore, the exceptional sensitivity of adolescents to their changing bodies would support the contention that they would respond to questions about their sexuality with greater ego-involvement than would adults.

Unfortunately, research on response bias due to problems of self-presentation has not been conducted in adolescent populations. In addition, the research which has been done on adults is rarely utilized when investigators embark on studying adolescent sexuality and choose particular methods of administration. This may reflect more than simple neglect on the part of researchers. While some investigators may be aware of the problem and concerned about it, a solution may be out of their reach. A study which requires elaborate probing may not be feasible in a questionnaire format. Questionnaire formats do

not allow for clarification of questions which may confuse the respondent, yielding irrelevant information. For these reasons, as well as others, the interview format has some distinct advantages over self-administered methods (Babbie, 1967; Sellitz, Wrightsman, & Cook, 1976). Similarly, under conditions in which problems of self-presentation may occur, research has suggested that the interview format may yield more biased results. The challenge then, is to develop methods which include the flexibility of the interview, along with the anonymity of the self-administered modes.

One method of gathering information from individuals which may combine these qualities nicely is the interactive, on-line computer interview. Computers have been programmed to interact with patients and research subjects and offer a number of advantages over other methods. In addition to their flexibility, computer interviews proceed at the individuals pace, are often more economical than other methods, produce constancy in interviewing style and technique, and have the potential of freeing specialized personnel for more productive tasks (Greist, et. al., 1973). However, the use of computers to conduct interviews on sensitive topics has not been attempted with adolescents, and has only rarely been utilized in older populations. Given the problems of re-

sponse bias on health surveys and the importance of research on sensitive topics among adolescents, it would seem that computers may provide an excellent medium for information gathering.

The current study was designed to examine response bias in health surveys among female adolescents as a function of three methods of eliciting sensitive information: face-to-face interviews, self-administered questionnaires, and interactive computer interviews. The health survey administered had a special emphasis on gynecological health, and anxiety in relation to the pelvic examination. This focus was chosen for a number of reasons. Although the literature on response effects has covered a large domain of content areas, a substantial proportion of studies have come from the health survey literature. This general content area thus provides a relatively large data base from which to estimate effect sizes and to provide adolescent-adult comparisons. Furthermore, the health survey literature provides a framework in which both sensitive and neutral questions may be placed. Discussion of gynecological health and health care has been shown to be perceived as a sensitive topic in previous studies with adults (Hochstim, 1967). Discussion about sexual attitudes and behavior, which would warrant inclusion in a study of gynecological health, has

also been demonstrated to elicit response effects in adults (Knudsen, Pope & Irish, 1976; Greist et. al., 1975).

Furthermore, examination of adolescents' subjective experience of the pelvic exam is, in itself, worthy of investigation. The pelvic examination is a crucial component of comprehensive health care for women. Regular pelvic examinations and associated procedures such as the Papanicolaou (PAP) test or bacterial cultures for sexually transmitted diseases are primary tools in the early detection of disease, and are recommended for all women once they have become sexually active, or have reached the age of sixteen years. Yet many women do not utilize these preventive measures. It has been speculated that women are reluctant to undergo regular pelvic exams because their experience of the examination is a negative one. Early experiences may be particularly important; the first pelvic examinations, often performed during the adolescent years, have thus been viewed as crucial in setting the stage for future behaviors (Wells, 1977; Kruetner, 1978).

To date, the empirical investigation of womens' attitudes towards the pelvic examination has been limited to a handful of studies, all of which sampled adult women exclusively. Given the potential impact of early experi-

ences on future behaviors, a study of adolescents' responses to pelvic examinations seems warranted. The current investigation of adolescents responses to pelvic exams had three objectives: (1) to document the presence or absence of anxiety in relation to pelvic examinations among adolescent patients, (2) to identify the major sources of that anxiety, and (3) to identify the factors associated with this anxiety.

REVIEW OF THE LITERATURE

The Problem of Response Bias

The premise that accurate measurement is essential in scientific investigation has been accepted for centuries. As such, interest in measurement has not remained solely an abstract idea, but rather, has been the subject of considerable empirical examination. In the social sciences, measurement artifacts which have been examined include error associated with sampling imperfections, error associated with the investigator, and error associated with respondents(1) (Webb, Campbell, Schwartz & Sechrest, 1966).

A large body of literature has accumulated on this latter source of error. Respondents' awareness of being tested is known to affect responses, and is referred to as the "Hawthorne effect", the "guinea pig effect" (Sellitz et. al., 1959), or the "reactive affect" of measurement (Campbell, 1957; Campbell & Stanley, 1963). Orne's

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(1) Of primary importance to this discussion are artifats which operate by affecting the actual response of the subject. Thus, recording errors, errors due to the measuring instrument, sampling errors, errors of interpretation and intention errors not due to the respondent will not be discussed here.

work on demand characteristics (Orne, 1962) has shown that experimential subjects are not merely passive recipients; rather, they respond actively to cues in the experimental situation. A variety of "response sets", which exert systematic biasing effects in research settings have also been delineated, including the acquiescent response set (Cronbach, 1950), and the tendency to respond in socially desirable directions (Crowne & Marlowe, 1964).

Numerous studies have documented the magnitude and scope of response bias (Balamuth, 1965; Cannell, Fisher & Bakker, 1965; Cannell & Fowler, 1963a, 1963b). In a series of national health surveys conducted for the National Center for Health Statistics (NCHS), large probability samples have been used to compare health data yielded from interviews with data obtained from official records. The studies included: A) a study of the Health Insurance Plan (HIP) of Greater New York comparing interview reports with physician records (Balamuth, 1965), B) a study from the Stanford Research Institute (SRI) which also compared respondents reports with medical records (National Center for Health Statistics, 1967), and 3) two studies conducted by the Survey Research Center (SRC), one which compared reports of hospitalization to hospital discharge records (Cannell, Fisher & Bakker, 1965), and

one which compared reports of physician visits to clinic records (Cannell & Fowler, 1963a). All of the above studies used standardized interviewing techniques of the Health Interview Survey of the National Health Survey, as well as similar methodologies and instruments. Interviews were conducted in respondent's homes.

The results of these surveys showed significant underreporting of health events among large representative samples. In the HIP study, 42% of chronic conditions noted by physicians were not reported by respondents in the interview, as were 37% of acute conditions and 13% of hospitalizations. The SRI study found that 10% of all chronic conditions and 36% of all physician visits went unreported in the interview. The SRC hospitalization study, a probability sample of 1,491 individuals, found that an average of 7% of all hospitalizations were not reported; excluding confinements due to obstetric deliveries, the percentage rose to 12%.

Similar results have been reported in smaller studies of health reporting. Goddard (1961) compared mothers' reports of their childrens' medical history with medical records and found that 53% of the major illnesses noted in the medical record were not reported by the mother. These major illnesses included problems such as tuberculosis, or pneumonia, as well as problems necessitating

hospitalization or surgical intervention. Hochstim (1967) found that 86% of women failed to report correctly on whether they had a PAP test. While it is probable that many individuals may be unaware of whether such a test is performed, the figures are still staggering. No information was provided as to the time frame in which the question was posed, for example whether the query was stated in terms of the last year, last five years, etc.

Underreporting has also been noted in studies focusing on behaviors outside of the health domain. Locander, Sudman and Bradburn (1976) queried subjects on whether they were registered to vote, voted in the prior primary election, had a library card, had ever declared bankruptcy, and whether they had ever been arrested for drunk driving. Subjects interview responses were compared to official records. The proportion of responses which were validated by official records ranged from a low of 53% (drunk driving), to a high of 85% (voter registration).

Interviews are not the only mode of administration in which unreliability emerges. Clark and Tifft (1966), in a study of social behaviors in male students, compared questionnaire responses to polygraphy validation and reported that 18.5% of the questionnaires were invalid. Examples of the behaviors studied were drug use, sexual behaviors, aggressive behaviors, and truancy. The prima-

ry cause of the invalid data was due to underreporting of specific events.

Discrepancies between data obtained by interview and data from objective records have also been reported for topics including bank accounts (Ferber, 1959; Lansing, Ginsberg & Braaten, 1961, cited in Cannell et. al., 1977). airplane trips (Lansing & Blood, 1964, cited in Cannell et. al., 1977), work history (Weiss et. al., 1961, cited in Cannell et. al., 1977), voting behavior (Parry & Crossley, 1950), and insurance coverage (National Center for Health Statistics, 1960).

Although the studies discussed so far have only dealt with response bias due to underreporting, response bias may also emerge in other ways which will be discussed in subsequent sections.

Factors Associated with Response Bias

A variety of factors associated with response bias have been examined in the literature, including those associated with the respondent, those associated with the person eliciting the information (such as the interviewer or the experimenter), and those associated with the task itself, (such as the mode of asking questions or the subject of investigation).

Although the literature most relevant to the current study focuses on the situations in which response bias is likely to occur and the types of questions prone to elicit response bias, it should be noted that many studies have provided information concerning characteristics of interviewers and respondents associated with response bias. The task of summarizing these studies is made considerable easier by the work of Sudman and Bradburn (1974), who conducted an extensive meta-analysis of 900 studies on response bias. Their analysis allows one to look across studies and examine the direction and average magnitude of response bias associated with a given interviewer or respondent characteristic.

As a result of their analysis, Sudman and Bradburn concluded that response effects associated with interviewer and respondent characteristics were, in general, smaller and less consistent than effects associated with task variables. In cases where large effects were noted as a function of respondents or interviewers, it was in conjunction with other factors, such as the topic of study. For example, when the topic of study highlights differences between interviewers and respondents (such as differences in race in a study of racial attitudes) response bias is likely to occur. Differences between interviewers and respondents appear to have little impact

when they are not perceived as relevant to the respondent.

Task variables, which fall under the general rubric of situational factors, have been less frequently studied, but their independent and combined effects on reporting behavior appear to be larger and more consistent than respondent or interviewer characteristics. Among the task variables which have been studied, two appear to have consistently large effects on respondent behavior; 1) the nature of the question asked, and 2) the method of administering the question.

The Type of Questions Prone to Elicit Response Bias

Sudman and Bradburn (1974) have suggested that questions which evoke problems of self-presentation for respondents are more likely to yield biased responses than are those which pose no such problems. The authors describe a number of different kinds of questions which have this property. Among those are questions which pose a threat to respondents and tend to arouse their anxiety. Examples of threatening questions would include ones dealing with health problems, illegal behavior, financial difficulties or sexual behaviors. A second type of question which is subject to response bias is the question which taps pervasive social norms. This is generally re-

ferred to as the problem of the socially desirable response. Questions for which there are clearly socially desirable responses often fall into the threat category as well; for example, questions about premarital sex may increase respondents anxiety as well as tapping a social norm prohibiting such behavior.

In general, research which has examined reporting trends for these kinds of questions has supported the hypothesis that they generate more biased responses.

Clark and Tifft (1966), administered questionnaires covering a range of deviant behaviors to a small sample of male students, followed by polygraph examination to check the validity of their responses. Substantial underreporting was found on more than half of the items.

In health surveys, diagnoses which are judged as embarrassing or threatening, such as psychiatric illness, genitourinary disease and malignant neoplasms, are underreported at a much higher rate than non-threatening or non-embarrassing disorders (Cannell, Marquis and Laurent, 1977; Marquis and Cannell, 1971). In the SRC study of hospitalization (Cannell, Fisher & Bakker, 1965), 21% of the hospitalizations for "embarrassing" health problems went unreported, compared with 14% of the problems which were somewhat embarrassing and 10% of the non-embarrassing health problems. Certain health problems were under-

reported at extremely high rates, such as diseases of the female reproductive system, which were not reported 44% of the time. It is interesting to note that students asked about their hypothetical willingness to report a variety of diseases yield rates of acknowledgement which are quite similar to actual reporting rates (Cobb and Cannell, 1966).

Locander, Sudman and Bradburn(1976) reported similar findings in a study which varied the threat of the questions asked and also had independent information from which to assess the validity of subject's responses. Threatening questions were more likely to yield biased responses than non-threatening questions ($p=.01$).

Similar results have been noted in studies on health behavior (Jordon, Marcus and Reeder, 1980), symptomatology (Thorndike, Hagen and Kemper, 1952), social attitudes (Robinson and Rohde, 1946), and social behavior (Parry and Crossley, 1950; Colombotos, 1969).

Impression Management and the Interviewing Situation.

One way of viewing the tendency of respondents to answer questions in socially desirable directions is in terms of impression management. Impression management refers to the strategies and techniques used by individuals to control the images of themselves they present to others (Snyder, 1974, Snyder, 1981). According to many

theorists, impression management is crucial to the socialization process and people who are unable or unwilling to utilize such skills violate the rules of social interaction and risk social disapproval (Mead, 1934; Goffman, 1959). Among the risks involved in eliciting social disapproval is the potential loss or lowering of ones self-esteem (Wylie, 1974). The concept of humans as social beings whose sense of self rests, in part, on social definitions, dates back to William James (1890) and is recognizable in most contemporary theories of human behavior (Snyder, 1981). Although individuals differ in their need for social approval (Crowne and Marlowe, 1964), there is little argument regarding the importance of social approval as a motivator of human behavior (Aronson & Carlsmith, 1968; Bandura, 1977a; Bandura, 1977b).

It seems reasonable then, to consider situations which increase the salience of social norms to be particularly prone to response bias. The interviewing situation may function this way by increasing ones sense of social involvement (Hyman, 1954). If it is true that the salience of social norms are increased in the face-to-face situation, then one could view subjects' tendencies to respond in socially desirable directions as partially motivated by the demand characteristics of the mode of administration. Questionnaires, which require no direct

revelation of self to another person should be less subject to problems of self-presentation, and less subject to response bias when sensitive questions are asked.

Mode of Administration and Response Bias

Sudman and Bradburn (1974), in their meta-analysis of response bias, conclude that face-to-face interviews yield greater response effects than other methods, particulary if the topic of study is sensitive in nature. This conclusion is based, in part, on comparing studies using a single method of administration to studies using other methods. The limited number of studies which have directly compared face-to-face interviews with other modes of administration have yielded equivocal findings in support of the hypothesis that face-to-face interactions yield more biased responses when there is a possibility of a socially desirable answer. Overall, differences between self-administered forms and face-to-face interviews have been shown to account for 1% to 7% of the variance in reporting behavior. However, many of the studies reported in the literature have suffered significant methodological flaws. In addition, few investigations have provided information about the interviewers used in the study. Such information is critical in studies comparing the face-to-face method to other approaches, given the

potential impact of the interviewer on reporting behavior in the interview.

Knudsen, Pope and Irish (1967) queried over 500 women about their attitudes towards premarital sex in a study which compared responses to questionnaires and face-to-face interviews. Mode of administration accounted for approximately 2% of the variance in response. Women who were interviewed in the face-to-face manner voiced less permissive (and presumably more "socially acceptable") attitudes towards premarital sex than did women who completed self-administered questionnaires. Eighty-three percent of the subjects in the interview condition reported feeling that premarital sex was never permissible, compared to 69% of the subjects completing questionnaires. It is of interest to note that all of the women in the sample had, in fact, experienced a premarital pregnancy. Differences as a function of mode of administration were particularly evident among subjects for whom the social distance from the interviewer was greatest. This could reflect class norm differences. While overall differences between conditions was 13.8 percentage points, in lower social class subjects the difference was 23 percentage points (approximately 6% of the variance). Unfortunately, subjects in the study were neither randomly selected nor randomly assigned to condition.

In a study of psychosomatic symptomatology, Thorndike, Hagen and Kemper (1952) compared responses to a 22-item inventory of psychosomatic symptomatology among 500 men who completed self-administered questionnaires and 505 men who were interviewed in the face-to-face manner. Subjects were randomly selected and randomly assigned to condition. Respondents who completed self-administered forms acknowledged having 15% more psychosomatic symptoms than did men who were interviewed. Responses in the "maladjusted" direction were more numerous on questionnaires on 14 of the 22 items. However, differences between conditions accounted for less than 1% of the variance in reporting behavior. Among subjects coming from low socioeconomic backgrounds, differences between methods accounted for almost 4% of the variance in reported symptomatology. While one could speculate that these differences emerged as a function of social distance between interviewer and subject (given that few interviewers are from low socioeconomic backgrounds), no information was provided about interviewers used in the study.

Kosen, Kitchen, Kochen & Stodolosky (1970), compared responses to questionnaires (n=16) and face-to-face interviews (n=16) in a sample of male and female college undergraduates. Measures included MMPI K-scale items (to elicit denial and defensiveness), a group of threatening

or embarrassing questions, and a group of neutral items. Items in the latter two groups were judged as neutral or threatening by an independent sample of judges, although no information was provided on the content of the items. To assure that items were perceived as threatening by subjests, items were also judged for their threat value by subjects in the study, prior to assignment to condition. The results showed no significant differences between groups on any scale, which is not surprising given the small sample size. Differences between interviews and questionnaires accounted for less than 1% of the variance in responses on the threat scale, with subjects in the interview condition tending toward more "desirable" responses than subjects in the questionnaire condition. In females, this difference accounted for 1% of the variance. Subjects' ratings of study items raises a methodological problem, since this could conceivably have affected their subsequent responses to those items.

Hochstim (1963, 1967) used a randomly selected sample of over 800 women to compare responses to personal interviews, questionnaires, and telephone interviews. Telephone interviews, while not self-administered, provide an interesting comparison to personal interviews since the formats are similar (verbal administration) but the presence of another person is missing. Women who were inter-

viewed in the face-to-face manner were less likely to report behaviors which placed them in a negative light than were women who completed questionnaires or were interviewed by telephone. Women in the face-to-face condition were less likely to admit that they drank alcoholic beverages, were more likely to report their health as excellent, and were less willing to admit discussing gynecological problems with their husbands. The largest differences between groups were found in comparisons of face-to-face interviews and questionnaires. On the question asking whether the women ever discussed gynecological problems with her husband; 31% of the subjects in the questionnaire condition said they did not discuss gynecological problems with their husbands, compared with 53% of the subjects who were interviewed in person. This differences represents approximately 4% of the variance in response. In contrast, differences between telephone and face-to-face interviews were in the 1% to 2% range.

Colombotos (1969) compared telephone interviews with personal interviews in a sample of 128 physicians. Subjects were randomly assigned to condition and asked questions about their professional behaviors (e.g., number of medical journals read monthly, number of published articles), ethics concerning medical practice (e.g., should doctors charge higher fees if the patient is covered by

insurance), reasons for entering the medical profession, and religious values. Socially desirable responses to the questions were identified by an independent sample of judges. Physicians were randomly assigned to a face-to-face interview (n=68) or to a telephone interview (n=60). On eight of the twelve items, subjects in the face-to-face condition gave more socially desirable responses than subjects in the telephone sample. On questions pertaining to professional behaviors and ethical standards, group differences accounted for approximately 1% to 2% of the variance in reporting.

Similar results were reported by Henson, Roth and Cannell (1977), in a probability sample of 680 males and females. Telephone interviews were found to generate significantly lower scores on a depression inventory than face-to-face interviews (r2=.02). However, the source of the difference was not in the reporting of negative affect, but in the higher rates of acknowledging positive psychological states among subjects in the telephone sample.

In contrast to these findings, Jordon, Marcus and Reeder (1980) reported greater response bias in telephone interviews. A sample of 1500 individuals were randomly selected and queried about their health beliefs and satisfaction with the medical system. Measures of response

bias used included evasiveness (the number of questions subjects did not answer), aquiescence (the number of yes responses), and extremeness (the difference between the number of extreme and mid-range responses on likert-scaled items). On all three measures of response bias, subjects in the telephone sample had significantly higher scores (accounting for 2% to 7% of the variance). The largest differences were on extremeness, which were on the order of one-half a standard deviation. The results of the study could be interpreted as showing telephone interviews to be somewhat less capable of engaging respondents than a personal interview. A possible reason why telephone interviews did not appear to have this quality in the Colombotos (1969) or Henson (1977) studies could be the topic of study. Questions about ones' health beliefs may not be viewed as particularly personal or threatening, in which case the personal interview and its ability to engage respondents might have the advantage.

Locander, Sudman and Bradburn (1976), compared telephone interviews, face-to-face interviews and questionnaires in a study which varied the threat of questions asked and had available information from which to check the validity of subjects' responses. In all conditions, threatening questions yielded more biased responses than

non-threatening questions ($p < .01$). There were, however, no significant main effects for mode of administration. However, as the threat of the question increased, the differences between face-to-face interviews and other methods became larger, in the direction of increased bias with face-to-face contact. Examination of the patterns of response by condition led the authors to conclude that response effects representing the overreporting of socially desirable acts should be considered separately from response effects due to the underreporting of undesirable acts. Their results provided weak support for the hypothesis that self-administered forms generated less bias when subjects were asked to report on socially desirable behaviors, but were worse when asked to report on undesirable behaviors. When response bias was in the direction of overreporting socially desirable responses (e.g., voting in an election), the questionnaire yielded less biased responses than other methods in seven of nine comparisons. When response bias was in the direction of underreporting of socially undesirable actions (e.g., being arrested for drunk driving), the questionnaire yeilded more biased responses on five of six comparisons.

The results of these and other studies do not allow one to reach firm conclusions about the effect of mode of administration on response bias. In addition to methodo-

logical difficulties, many studies have not had the statistical power to detect small differences in response. Where differences as a function of administration method have been noted, their effects have been small. These small effects should, however, be placed in perspective. Response effects represent a source of the variance in reporting behavior which introduces systematic bias into other analyses of primary interest. As such, small reductions in this bias may have a significant impact on the conclusions of the study.

Research in Health Settings on Sensitive Topics

Self-presentation may be an important factor influencing respondent reporting behavior. The implications of such a relationship may be particularly salient when one considers the situational context in which many health transactions occur. In clinical activities, respondents are often asked to divulge information which they perceive to be private and personal. Questions about specific behaviors frequently tap areas in which there are socially desirable responses. Concerns about ones normality may be heightened in the context of a physical examination or research conducted at a medical facility. There is some empirical evidence that subjects' responses to social norms may be heightened in clinical settings (Rosenberg, 1969).

Furthermore, different topics of discussion may be more likely to evoke issues of self-presentation than others; studies of human sexuality could be expected to have a greater potential for eliciting response bias due to impression management strategies than would more neutral topics. Many of these sensitive topics are the focus of significant research efforts. For example, in recent years, adolescent sexuality has generated substantial interest among behavioral and medical scientists. The significance of this topic rests, in part, on the magnitude of problems such as adolescent pregnancy and sexually transmitted disease and their associated medical, social and psychological sequelae. Given this, the application of our current knowledge about response effects to the study of adolescent sexuality would seem to be an appropriate and important consideration.

Impression Management During Adolescence

Theoretical models of adolescent development suggest that issues pertaining to self-presentation may be particularly salient during adolescence. During the period of adolescence, issues of one's identity predominate as young people learn to define and accept their changing physiques, their sexual role identity, their moral convictions, the limits of their dependence and indepen-

dence, and their place in society (Kohlberg, 1963; Blos, 1962; Erikson, 1950, 1968). In moving towards identity formation early adolescents expand their social radius, and begin to rely heavily on their peers to provide a basis for social comparison. This social comparison process facilitates self-observational skills, and in conjunction with the adolescents relatively new cognitive skills allows the young person to experiment freely with different roles, first cognitively, and later behaviorally (Erikson, 1968; Elkind, 1968). Due in part to these developmental tasks, the adolescent years has been viewed as a period of heightened awareness of ones' self-image compared to other stages in life (Rosenberg, 1965; Ausubel, Montemayor & Svajian, 1977). Adolescents are likely to be anxious about the evaluations other people make of them (Offer, 1969). An increased dependence on the evaluation of others suggests that adolescents would have particular difficulty when conflict around self-presentation occurs. If adolescents do have a heightened dependence on the evaluation others have of them, then in situations where self-presentation becomes an issue, one might expect adolescents to engage in impression management strategies to a greater extent than adults. Furthermore, the exceptional sensitivity of adolescents to their changing bodies would support the contention that

they would respond to questions about their sexuality with greater ego-involvement than would adults.

Unfortunately, research on response bias due to problems of self-presentation has not been conducted in adolescent populations. In addition, the research which has been done on adults is rarely utilized when investigators embark on studying adolescent sexuality and choose particular methods of administration. There are indications to suggest that the face-to-face method may have limitations when studying sensitive topics, yet research on adolescent sexuality is generally conducted using face-to-face interviews (Chilman, 1980). As noted earlier, it is possible that researchers are not necessarily ignoring the issue; while some investigators may be aware of the problem and concerned about it, a solution may be out of their reach. A study which requires complex decision rules and probing may not be feasible in a questionnaire format. Questionnaire formats do not allow for clarification of questions which may confuse the respondent, yielding irrelevant information. For these reasons, as well as others, the interview format has some distinct advantages over self-administered methods (Babbie, 1967; Sellitz, Wrightsman, & Cook, 1976). Similarly, under conditions in which problems of self-presentation may occur, research has suggested that the interview format may

yield more biased results. The challenge then, is to develop methods which include the flexibility of the interview, along with the anonymity of the self-administered modes.

Utilizing Computers as an Interviewing Device

Over the past thirty years, technological advances in the design of computers have had a tremendous impact on their use in the health field. Computers have been programmed to interact with patients in a variety of ways. Computers have been programmed to serve as information gatherers, to perform psychological testing, to diagnose illnesses, and to conduct therapeutic interventions. Comprehensive reviews of the use of computers in psychological testing, diagnosis, and therapy have been written (Space, 1981), and will not be discussed in detail here.

Research on interviews delivered via computer have examined both the reliability and validity of information gathered by computer, as well as the acceptibility of computer interviews among patients in health settings and health care providers.

The majority of research aimed at assessing the reliability and validity of computer interviews conducted in both clinical and research settings has shown computer interviews to equal or surpass traditional interview methods.

Lucas, Mullin, Luna and McInroy (1977), found that patients at an alcohol-abuse clinic (n=36) reported engaging in significantly greater amounts of alcohol use to a computer interview than to a psychiatrist ($p < .005$).

In another clinical setting, Greist, Klein, Van Cura and Erdman (1975), found patients more willing to acknowledge a variety of "deviant" behaviors and attitudes to a computer interview (n=50) than to questionnaire items (n=50). Subjects interviewed by computer were more willing to admit having homosexual feelings (5% of the variance due to condition), to feel guilt over premarital sexual behavior (2%) and to have felt like killing someone (2%).

Another study comparing reponses between computer interviews and self-administered questionnaires was reported by Evan and Miller (1969). Sixty male undergraduate students were randomly assigned to one of the two conditions. Each group completed the following measures: MMPI Lie Scale (K), MMPI Manifest Anxiety Scale, Allport-Vernon-Lindzey Scale of Individual Values (AVL), the Strole Scale of Sociocultural Anomie, and a set of items which were designated as neutral items. The neutral items included both behavioral and attitudinal items. Following the administration of these measures, subjects in both groups were asked to complete a questionnaire

which assessed whether they were disturbed by certain questions, whether they had felt the information would be kept confidential, and whether they had felt reluctant to answer any questions. The authors hypothesized that no differences between the groups would emerge on neutral items. Subjects in the computer condition were expected to report more symptoms of manifest anxiety, give fewer socially desirable responses indicating sociocultural anomie, give lower scores on the MMPI Lie Scale, and show higher scores on the Religious Value Subscale of the AVL. This latter prediction was made of the basis of the authors expectation that subjects were engineering students for whom the social norm was attenuated religious values. Thus, a greater willingness to acknowledge religious sentiments was viewed as a more honest response. Pooling responses to measures on which differences were expected, the results showed a significant difference between the groups ($p<.05$). Univariate analyses indicated that subjects in the computer condition had higher scores on the Religious Subscale of the AVL ($t=3.51$, $p<.001$). Differences on the MMPI Scales and the Strole Scale were not significant, but were in the expected direction (accounting for approximately 1% of the variance). There was a trend towards higher anxiety in the group interviewed by computer, which the authors interpreted as a greater

willingness to disclose personal information. Pooled results of the neutral items showed no significant differences between groups. Subjects in the computer condition also reported greater confidence in the anonymity of their responses, but this difference was not a significant one.

In a more elaborate study, responses to computer interviews, face-to-face interviews, and self-administered questionnaires has been reported (Kosen, et. al., 1970). Forty-eight subjects were randomly assigned to conditions (16 per group). The study compared responses to threatening or embarrassing questions, questions judged as neutral, and MMPI Lie Scale items. The social desirability of the items was rated by 20 independent subjects, but was also rated by experimental and control subjects prior to their participation in the study. Although differences between questionnaires and face-to-face interviews accounted for only 1% of the variance in response, differences between subjects in the face-to-face and computer condition accounted for 4% of the variance. Among female subjects, mode of administration (computer vs. face-to-face interview) accounted for 14% of the variance in response on threatening items.

In contrast to these findings, Rezmovic (1977) reported no differences between responses on computer inter-

views and questionnaires. Rezmovic compared responses to the Marlowe-Crowne Social Desirability Scale (SDS) and Rotter's Locus of Control Scale (LOC), in a sample of college students who were randomly assigned to a computer condition (n=49) or to a pencil-and-paper version of the instruments (n=49). A few weeks later, subjects were re-tested in the alternate condition. Differences between the groups accounted for less than .01% of the variance on either measure. Variances within the groups were significantly different; subjects who were first tested in the computer condition, and later retested in the questionnaire condition showed greater variance in their scores on the SDS. Rezmovic attributed these differences to the interaction with the computer.

On the basis of these few studies, it is not possible to assess whether clinical and experimental settings differ significantly in terms of their potential for eliciting response bias or differences in response as a function of administration mode.

Acceptability of Computer Interviews

Studies which have evaluated the acceptibility of computer interviews have, without exception, been reported in the health area, in clinical settings. In a study which used computers to interview psychiatric patients about suicidal thoughts (Greist, Gustafson, Stauss, Rowse, Laughren & Chiles, 1973), 22 psychiatric patients who had expressed suicidal tnoughts and 43 non-suicidal psychiatric patients were interviewed by either a computer or a physician. Among suicidal patients, for whom the questions may have been more ego-threatening, 52% expressed a preference for reporting suicidal feelings to a computer, rather than a physician. Among non-suicidal patients, 27% prefered the computer. This suggests that in areas where there is conflict, such as in asking suicidal patients whether they have suicidal thoughts, the preference for the computer may be increased because of that conflict. Patients in the computer condition reported liking the computer, feeling comfortable with it, and felt they were able to get their ideas across and express their feelings.

Slack et. al., (1966) utilized a computer based medical history system to elicit information about allergic symptoms in a sample of 50 general medical inpatients. Most of the patients enjoyed the computer interview. In

terms of preferences, 36% prefered the computer to a physician-based history, 24% prefered a physician and 40% had no preference. Among those with a preference, 60% prefered the computer.

In a similar study, Grossman et. al. (1971) conducted a family, social, and medical history on 250 outpatients. Fifty-four percent of the subjects interviewed by computer reported that they would like to talk with the computer on future visits, and 91% said they enjoyed the interview and were not bored. A separate sample of 56 inpatients were given both the computer-based history and a physician generated history. In terms of the quality of the data, there was good agreement between the two methods of administration, although the computer recorded more items than the physician.

Other studies assessing the acceptability of computer interviews to patients have reported similar findings; while patients do not overwhelmingly prefer computer interviews, they seem to enjoy computer interviews, are not bored by their presentation formats, and feel comfortable expressing themselves to the computer (Greist & Klein, 1980; Stout, 1981).

Sensitive Topics of Importance in Adolescents - The Gynecological Examination

In recent years there has been increasing emphasis placed on the importance of preventive approaches to health care (Somers, 1976). A primary component of preventive health care for women is the pelvic examination. Regular pelvic examinations and associated procedures such as the Papanicolaou (PAP) test and bacterial cultures for sexually transmitted diseases are important factors influencing the early detection of disease in women.

Unfortunately, many women do not utilize this preventive measure (Debrovner and Shubin-Stein, 1975). Recent literature has begun to address this lack of utilization by examining women's attitudes towards pelvic examinations and their responses to the procedure. The majority of articles written on the topic have been non-empirical, offering speculative discussion on the basis of clinical observation. The common theme which has emerged from these clinical observations is that women experience anxiety in relation to pelvic examinations which accounts for their reluctance to undergo regular exams (Schwartz, 1979; Schrag, 1978; Tunnadine, 1973; Fordney-Settlage, 1979; Wells, 1977; Debrovner & Shubin-Stein, 1975; Liston & Liston, 1978). Clinical descriptions of the degree of anxiety present in women anticipating or undergoing the

procedure vary, although many of the observations have described significant anxiety reactions (Fordney-Settlage, 1979; Tunnadine, 1973; Debrovner and Shubin-Stein, 1975).

A variety of sources for the anxiety have been postulated, some of which are common to other medical examinations and procedures and some of which are unique to gynecological examinations.(2) Like many medical procedures, the pelvic examination has been described as evoking patients' fears in relation to the potential discovery of pathology, expectations of physical discomfort, and psychological discomfort due to the intrusion of body privacy by a stranger (Fordney-Settlage, 1979; Schrag, 1978). Unlike most other procedures, the pelvic examination involves the exposure and manipulation of the genitals, which are considered perhaps the most private of all body parts. This aspect of the examination has been said to evoke the most discomfort in patients, typically producing shyness and embarrassment (Tunnadine, 1973; Zussman and Zussman, 1973). A number of authors have argued that the focus on the genitals, which are also associated with sexual functioning, may heighten conflicts regarding ones sexuality or evoke confusion regarding sexual overtones of the examination situation itself

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(2) A noteable exception is genitorectal examination of men.

(Fordney-Settlage, 1979; Tunnadine, 1973). Other authors have argued that there is little evidence of such sexual confusion or fantasizing in association with pelvic examinations (Debrovner and Shubin-Stein, 1975). More commonly, patients' fears in respect to genital examination have been described in terms of the potential discovery of virginal or non-virginal status (Schrag, 1978), or other sexual practices such as masturbation (Tunnadine, 1973).

An additional theme which emerges from these clinical observations has been one of vulnerability and powerlessness. The supine and exposed position of the patient on the examination table evokes feelings ranging from awkwardness to humiliation (Magee, 1975; Wells, 1977).

The empirical investigation of womens' feelings in response to pelvic examinations has been limited to seven studies. Liston and Liston (1978) examined women's feelings about the use of mirrors during pelvic examinations. While their results indicated that the use of the mirror was well accepted by patients, no data was collected on reactions to pelvic exams in general or sources of negative feelings towards pelvics.

Hammar (1968) reported on a study of adolescent's anxiety in relationship to medical examinations. Seventeen percent of the adolescents reported that they found pel-

vic or rectal examinations to be the most anxiety-producing aspects of medical exams. Unfortunately, the study included both boys and girls and only combined results on both pelvic and rectal exams were presented.

The first study on pelvic exams which provided data on women's reactions was reported by Osofsky (1967). A sample of 40 women (mean age 26 years, range=20-39) completed questionnaires following a pelvic examination. Eighty percent of the women reported anxiety in relationship to the examination. The two most common sources of anxiety were the vulvovaginal and rectovaginal portions of the exam. Both portions were associated with feelings of physical discomfort and generalized embarrassment. The vulvovaginal exam elicited sexual feelings in some patients, although the number of patients reporting such feelings was not reported. Sexual feelings in patients undergoing pelvic exams were reported in 3% of adult women by Weiss and Meadow (1979). Rectovaginal examinations elicited feelings of extreme unpleasantness and were more disliked than vulvovaginal examinations. This finding has also been reported by Haar (1975). Weiss and Meadow (1979) had 59 college students and 6 faculty members complete questionnaires eliciting their attitudes about pelvic examinations. Eighty-five percent reported negative feelings regarding pelvics, 71% said they were

anxious, 21% reported feeling vulnerable and humiliated, and 19% felt dehumanized. Eighty-three percent of the sample felt that pelvic exams could be improved; of these, 87% cited changes pertaining to the doctor-patient relationship and 29% mentioned procedural changes.

The most extensive survey of women's attitudes was done by Petravage, Reynolds, Gardner and Reading (1979), on a sample of 977 women from 14 different health care facilities. Of the women sampled, 54.8% reported feeling uncomfortable during pelvic examinations. The most frequently mentioned sources of discomfort were: physical discomfort (37.5%), the fact that it was an examination of the sexual organs (20%), physician attributes (7.3%), and a history of prior negative experiences (5%). A majority of subjects acknowledged they would like: more information about what would happen during the exam (77.1%), warming of instruments (66.6%), exam performed more gently (62.0%), more time to talk with the doctor (59.8%), and being shown the instuments prior to the examination (53.5%). Subjects who were most likely to feel uncomfortable about pelvics and to desire more changes in them were younger, single, and with fewer children.

The results of empirical investigations appear to confirm many of the clinical impressions which have been reported. Women do appear to evidence anxiety in relation

to pelvic exams, although the degree of anxiety they experience has never been assessed using standardized measures. The assumption that adolescents may experience even greater anxiety with pelvic exams has also never been assessed. Early examinations are viewed as especially important in setting the stage for future behaviors (Kruetner, 1978; Wells, 1977), yet there has not been a study looking at adolescents reactions. There is also a feeling that adolescents may have particular difficulty with such exams, but no empirical evidence exists to support or refute this claim.

HYPOTHESES TO BE TESTED

Hypotheses Pertaining to Response Bias

The current study was designed to examine response bias in female adolescents as a function of three methods of eliciting sensitive information: 1) face-to-face interviews, 2) self-administered questionnaires, and 3) interactive computer interviews.

It is hypothesized that computer interviews and questionnaires, which do not require the respondent to interact directly with another person, will be less likely to generate socially desirable responses from subjects. Subjects in these conditions are expected to give a greater frequency of responses which are considered socially undesirable than are subjects interviewed in the face-to-face manner.

It is also expected that subjects in the face-to-face condition will be more anxious than subjects in other conditions, due to potential threats to their self-esteem. Although there is no information in the literature reporting similar findings, this finding is expected in view of the process hypothesized to underlie the response bias phenonena. Specifically, the following hypotheses will be tested:

1. Controlling for method of administration, high levels of state anxiety will be associated with greater response bias than will low levels of state anxiety.
2. Subjects interviewed in the face-to-face interview condition will report significantly higher levels of state anxiety following the interview than will subjects in the questionnaire or computer interview condition.
3. Questions for which there are socially desirable responses and those which are personal, threatening or embarrassing in nature, will be answered in the socially desirable direction more frequently among subjects in the face-to-face interview condition than among subjects in the questionnaire or computer interview conditions.
4. Method of administration will account for more variance in response bias than will individual differences in the tendency to respond in socially desirable directions (high need for approval).

Hypotheses Pertaining to Pelvic Examinations

It is hypothesized that anxiety in relation to the pelvic examination will vary as a function of the adolescent's age, race-ethnicity, history of sexual activity, history of prior pelvic exams, and the sex of the provider. These hypotheses are based on observational data reviewed in the previous section, as well as clinical experience of providers in adolescent medicine. Specifically, the following hypotheses will be tested:

1. The highest levels of anxiety prior to the pelvic examination will be found in adolescents who are young, those who are not Caucasian or Black, those who have had little or no sexual experience, and those who have had fewer prior pelvic examinations.
2. Controlling for method of administration, the highest levels of anxiety during the pelvic examination will be reported by adolescents who are not Caucasian or Black, who have had little or no sexual experience, who are seen by a male provider.
3. Controlling for method of administration, the highest levels of anxiety following the pelvic examination will be reported by adolescents who are not Caucasian or Black, who have had little or no sexual experience, who are seen by a male provider.

METHODS

Subjects

Subjects were 108 female patients from one of three adolescent clinics located in a hospital-based, ambulatory care facility. Two clinics offered general medical care to adolescents and one specialized in gynecological care. All patients seen for care over a five month period who agreed to participate in the study were included, with the following exceptions: (1)age less than 14 years, (2)presence of a severe psychosocial problem, as identified by the clinic social worker, such as psychosis or character disorder, (3)developmentally disabled, or (4)non-English speaking. Among patients who were asked to participate, approximately 76% agreed to take part. No information was collected on patients who refused to take part which would allow for comparisons between those who refused and those who agreed to take part. Subjects ranged in age from 14.1 to 20.3 years, with a mean age of 16.9 years. The racial-ethnic distribution of the sample was 36.3% white, 35.3% black, 12.7% hispanic, 7.9% asian, and 7.9% other. On the Two Factor Index of social class (Hollingshead, 1957), 2.3% of the subjects were in Class

II (Upper-Middle Class), 36.8% in Class III (Middle), 58.6% in Class IV (Lower-Middle), and 2.3% in Class V (Lower).

Instruments

The following instruments were utilized in the study: (a)the Spielberger State- Trait Anxiety Inventory (STAI) - State-Anxiety Form (Appendix A), (b)the Marlowe-Crowne Social Desirability Scale (SDS) (Appendix B), (c)the Sociodemographic Inventory (Appendix C), and (d)the Adolescent Health Survey (AHS) (Appendix D). Each of the measures is described below.

State-Trait Anxiety Inventory - (STAI)

The STAI, State-A Form (Spielberger, 1970; Kendall, et. al., 1976) is a 20-item self-report inventory which provides a measure of state anxiety (transient anxiety occurring as a function of perceived stress). The STAI measure of state anxiety was administered to subjects prior to (STAIPRE) and following (STAIPOST) their appointments. The STAI has been shown to be capable of detecting changes in state anxiety as a function of exposure to ego-threatening situations (Auerbach, 1973) and has been validated in adolescent populations. The instrument was utilized in the present study to assess both

subjects level of anxiety in relation to pelvic examinations (if they had such an exam on the day of the study), as well as to assess anxiety in relation to the mode of administration of questions. Evidence bearing on the construct validity of the STAI State-A form in college students has been provided in studies which have demonstrated elevated State-A scores in stressful experimental conditions (Spielberger, 1970). The internal consistency of the STAI is .92 (Chronbach's Alpha).

Marlowe-Crowne Social Desirability Scale - (SDS)

The SDS (Crowne and Marlowe, 1964) is a 33-item self-report questionnaire which provides a measure of subjects' tendency to respond in socially desirable directions. The tendency to respond in socially desirable direction is viewed as representing a high need for social approval.

The SDS asks subjects whether a given item applies to them or not. Items for the SDS were selected on the basis that they reflected social norms, were untrue of virtually all people, and had minimal pathological significance. The test-retest reliability of the SDS over a one month period is .88. The internal consistency of the SDS is .88 (Chronbach's Alpha). The construct validity of the SDS has been demonstrated in a series of studies

which show individuals with a high need for approval to also be more conforming in a variety of situations, cautious in risk-taking encounters, more persuasible, subject to greater verbal conditionability, and more normatively anchored (Crowne & Marlowe, 1964). The SDS has also been shown to correlate with MMPI validity scales, the MMPI Psychopathic Deviate Scale (Pd), and the Schizophrenia Scale (Sc).

In the current study, subjects completed a 31-item version of the SDS. Two items were deleted from the original scale because they were not applicable to adolescents. These items were: 1) Before voting I thoroughly investigate the qualifications of all the candidates, and 2) I never make a long trip without checking the safety of my car. Other studies using the SDS in adolescent populations have deleted these items as well. Due to the deletion of these items, subjects raw scores on the SDS (the number of positively scored items) was multiplied by a constant (1.06451) in order to compare need for approval in experimental subjects with normative data.

Sociodemographic Inventory

The Sociodemographic Inventory, created for use in the current study, was administered verbally to subjects and included questions about their age, ethnicity, religiosity, and their parents education and occupation.

Adolescent Health Survey - (AHS)

The AHS was constructed to serve as the primary data gathering tool from which comparisons between different methods of administration were made. The protocol was constructed to satisfy two criteria.

First, items were selected so that they varied on two dimensions: (1)the liklihood that the question could "pull" for a socially desirable response, and (2)the liklihood that the question posed a threat to subjects in the sense that it was extremely personal or potentially embarrassing to answer. This provided the basis from which the three methods of administration could be compared for socially desirable response bias.

Second, the instrument was constructed to provide information about adolescents' subjective experiences with pelvic examinations, as well as data on factors thought to affect those experiences.

The instrument contained four sections, each of which is described below.

SECTION I. The first section of the AHS queried subjects about their general health status and health history, previous patterns of health care system utilization, health habits, previous clinic history, the reasons for their current visit, and their subjective evaluation of the clinic and the provider seen.

SECTION II. The second section of the instrument focused on gynecological health and included questions regarding the subject's gynecological history, menstrual history, and sexual history.

SECTION III. The third section of the instrument was developed to yield information from subjects about their history and subjective experiences in relation to pelvic examinations. This section included questions about subjects' previous history of pelvic exams, their expectations of whether they would have a pelvic exam on their current visit (reported retrospectively), and what information significant others had conveyed to them about pelvic exams.

Questions pertaining to subjects experience of pelvic exams were phrased to elicit information about the subjects last pelvic, whether it took place on the day of the study or on an earlier occasion. Multiple questions were used to measure adolescents' subjective assessments of pelvic examinations. Questions pertaining to adoles-

cents' concerns about pelvic examinations were included, which included aspects of the pelvic examination discussed in the literature as being potentially anxiety-producing. Subject's experience of the examination itself was assessed through a 90-item adjective checklist of affective states, specific questions on pain, anxiety, and embarrassment, and open-ended questions on the "good things" and "bad things" about their last pelvic exam. In addition, subjects were asked how difficult they found pelvic examinations to be in relation to other medical procedures, whether they thought they would have another pelvic examination within the next year, and what information they would convey to friends about pelvic examinations.

SECTION IV. The last section of the survey asked subjects to evaluate their participation in the study; for example, whether they enjoyed the survey, or if they found questions embarrassing, personal, or difficult to answer. In addition, subjects were asked which of the three methods of administration (face-to-face interview, questionnaire, or computer interview) they would choose if they had been given a choice of methods.

Assessing the Social Desirability of AHS Items.

The selection of items which had the potential to elicit socially desirable responses occurred in two phases. During the first phase, items were chosen for inclusion on the AHS using one of the following criteria:

1. The item was rated in previous studies as a social desirability item, recognized in terms of its ability to tap social norms. In other words, the item had a high social desirability scale value (SDSV). (See Edwards, 1970).
2. There was reason to believe that an item would pull for a socially desirable response based on theoretical grounds.

In the second phase, items which were chosen using the second criterion were assessed in terms in their social desirability scale value (SDSV)(3) by an independent sample of seven female adolescents.(4) Each adolescent was asked to rate the social desirability of 21 critical AHS statements using a nine-point scale (Appendix E). The SDSV of any given statement was defined as its mean rating across judges. Research has shown this technique to

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(3) The full procedure for determining the SDSV of an item is described fully in Edwards (1970).

(4) None of the subjects who rated the SDSV of AHS items were subjects in the main study. The mean age of the subjects was 16.86 (range=15-18).

generate high interrater reliabilities (Edwards, 1970). The interrater reliability of SDSV ratings among the seven adolescent females who rated items used in the current study was .93 (Chronbach's alpha). The mean interrater correlation was .66 (range = .16 to .87). Appendix F gives the SDSV ratings of AHS items.

Data Reduction of AHS Items.

Adjective Checklist and ACL Subscales.

A 90-item adjective checklist (ACL) asking subjects to recall how they felt during their last pelvic exam was constructed to assess subjects' affective response to the pelvic examination. Items included on the ACL were selected to represent the range of affective responses to pelvic exams which have been discussed in the literature.

Examination of individual item frequencies identified one item ("aloof") whose meaning was unknown to 6.9% of the subjects. This item was dropped from subsequent analyses. Each ACL item was designated, apriori, as representing either a positive or a negative affective response to the pelvic examination (Appendix G). Forty-two items were scored in the positive direction, 42 were scored in the negative direction, and six were not scored in either direction.

ACL items were grouped, apriori, into 11 subscales representing general response themes. Subscale scores were calculated by summing the number of items endorsed on the subscale. After examining reliability coefficients (Chronbach's standardized item alpha) on the subscales, a number of changes were made, (Appendix H) yielding a final total of 9 subscales (Appendix I):

a. Anxiety (ANXACL): 12 items, Chronbach's alpha=.87.

b. Vulnerability (VULNACL): 8 items, alpha=.85.

c. Anger (ANGER): 6 items, alpha=.82.

d. Depressive Affect-Withdrawl (DEPR): 7 items, alpha=.65.

e. Negative Self-Image (NSI): 4 items, alpha=.75.

f. Relaxation (RELAX): 10 items, alpha=.80.

g. Involvement-Active Participation(INVOLVE): 8 items, alpha=.73.

h. Mastery (MASTERY): 6 items, alpha=.75.

i. Positive Self-Image (PSI): 7 items, alpha=.75.

In addition to these subscales, summary scores representing the total number of positive (ACLPOS) and negative (ACLNEG) adjectives was calculated. The reliability coefficients of ACLPOS and ACLNEG were .92 and .93, respectively.

Coding of Open-Ended Questions.

Five questions on the AHS were open-ended in nature:

1. What have you heard about pelvic exams?
2. What were the good things about your last pelvic exam?
3. What were the bad things about your last pelvic exam?
4. If a girlfriend asked you what pelvic exams were like and she had never had a pelvic exam, what do you think you would tell her?
5. Why would you choose this method (of administration)?

A total of four different coding schemes were used to categorize subjects' responses to open-ended questions (see Appendices J, K, L, and M). Responses to Questions 1 and 4 (above) used the same coding scheme. Most of the categories for the four coding schemes were developed a priori; a few categories were added after viewing a sample of responses. Subjects' responses were coded by the principal investigator and a second independent rater. Neither rater had any information on the subject other than her response to a single question while coding was

in progress. Each unique (non-repetitive) response by a subject was scored. The number of uncodable responses for each of the coding schemes ranged from a low of 2.0% (bad things about the pelvic) to a high of 5.9% (what have you heard about pelvic exams). The percentage agreement between raters ranged from 90% to 95% (see Appendices J to M). Disagreements between raters were resolved by the principal investigator.

Procedure

The current study compared response bias as a function of three methods of administering a health survey: face-to-face interview, self-administered questionnaire, or computer interview. Subjects were randomly assigned to one of the three conditions. State-anxiety was measured prior to and following subjects encounter with the health care provider. After 21 days of running the study, a shortened version of the AHS which excluded a number of "filler" items was created. This was done in a attempt to shorten the amount of time taken with a subject. The short form reduced the average contact time with subjects from 53 minutes to 35 minutes. Form differences were not associated with sociodemographic characteristics or dependent variables.

Interviewers

Two caucasian females with backgrounds in social work and experience with adolescents served as interviewers. Due to the nature of the study and the potential for experimenter expectancy effects, interviewers were kept blind to the actual study hypotheses. They were told that the study had three purposes: (1)to provide normative data on current issues in adolescent health, (2)to analyze costs involved in different methods of administering questions,(5) and (3)to investigate the feasibility of conducting computer interviews in adolescent populations. Each interviewer participated in conducting face-to-face interviews, setting up computer interviews, and distributing questionnaires.

Training and Monitoring of Interviewers.

Interviewers underwent a 12 hour training period to become familiar with the interview protocol and specific study procedures. Interviewer's training involved role-playing of interviews under the observance of the principal investigator and the research assistant, as well as videotape feedback of practice sessions.

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(5) Interviewers did, in fact, collect data pertinant to a cost analysis. This involved having them keep detailed records of how long each interview took.

During training, interviewers were informed that some of their interviews with real subjects would be monitored by the principal investigator, but that they would not be told the specific times that such monitoring would occur. This was accomplished through the use of one-way speaker systems installed in interviewing rooms, which remained intact during the entire study period. Each interviewer was monitored twice during the study.

Subject Recruitment

On arrival to the clinic, all patients meeting study criteria were approached by the research assistant, who explained that a survey on adolescent health was being conducted at the clinic.

> Hello, my name is _____ and we're doing a survey on young women who use this clinic. The survey asks questions about your health, your health habits, and how you feel about the care you've gotten at this clinic. The survey is voluntary and you don't have to take it if you don't want to. Before you decide if you would like to do the survey, let me tell you what it will involve. First, we will pay you $5.00 for doing the survey. I'll have you fill out a short form before you see the doctor. Then, when you have finished your appointment, there are some other questions that will take about a half-hour to answer. The answers that you give are confidential - none of the doctors or nurses will know what you specifically have said.

Patients who gave verbal consent to participate were given the STAI (State-A Form) prior to their appointments.

Completed forms were collected from subjects before they entered the examination room. When subjects finished their appointments, they were introduced to their interviewer.(6) who then obtained subjects' written consent to participate (Appendix N). After the consent procedure, subjects were randomly assigned to one of three conditions: (1)face-to-face interview (Group I), (2)self-administered questionnaire, (Group Q), (3)interactive computer interview (Group C). A random permutation schedule of blocks of six was used to create sealed envelopes which listed the condition to which a subject was assigned. The envelopes were opened by interviewers while the subject was signing the consent form. Thus, interviewers were not aware of the data collection condition to which a subject was assigned until after consent was obtained. Appendix O gives complete details of the randomization procedure.

Following the consent and randomization procedure, subjects were given one of the three forms of the AHS. Subjects in all conditions were questioned at the same location. Interviewers remained accessible in a nearby room for subjects in groups Q and C who needed assistance with the questionnaire or the terminal. One subject required assistance when her interview terminated prema-

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(6) Subjects were assigned to interviewers by a coin flip.

turely due to computer malfunction. The interview was restarted from the point at which the malfuntion occured by the principal investigator, and the remainder of the interview proceeded normally. Following completion of the AHS, the post measure of the State-Trait Anxiety Inventory (State-A Form) and the Marlowe-Crowne Social Desirability Scale was administered using the standard pencil-paper questionnaire form for all subjects. Sociodemographic information was collected from subjects last. using traditional face-to-face interviews.

Detailed Description of the Three Conditions

Subjects in the face-to-face interview condition (Group I) were interviewed privately by an interviewer in the traditional manner. The interview was structured although subjects were encouraged to elaborate on their answers. Interviewers coded subjects' responses directly on specially prepared interview-code sheets during the interview. The questionnaire administration condition (Group Q) involved having subjects complete a self-administered questionnaire in a private room. Subjects in Group C were interviewed by a computer programmed to deliver the interview protocol. The computer interview involved having subjects sit before a cathode ray termi-

nal(7) which was similar in appearance to a television screen. Questions appeared on the screen and subjects responded by typing in their answers on the attached keyboard. Terminals were connected by telephone line to a PDP 11/70. The computer program was written in the PILOT CAI language (Appendix P). which ran on the UNIX operating system (Version 6.0). PILOT is a programming language which can be readily learned and allows the user to interact with the computer using standard English. All subjects underwent an instruction period so that they would understand how to use the computer terminal and what to do if they made a mistake or wished to change a response.

Adapting Measures to Conditions.

Questionnaire, interview and computerized versions of the AHS were developed in a manner designed to maximize the potential of each mode of administration. Thus, the interview versions of the AHS did, on occasion, include probing questions which were not included on self-administered forms. This concession was made to assure that comparisons between methods have some external validity, and was used only when absolutely necessary. Other

(7) Zenith Z-19.

aspects of the AHS, such as the wording of questions and their position in the measure were invariant across conditions.

RESULTS

The results are presented in four sections. First, characteristics of the study sample are described. Next, results pertaining to differences in reporting as a function of the three methods of administration are presented. The third section presents results pertaining to state anxiety in relation to pelvic examinations. The last section describes the results of the pelvic analyses as a function of mode of administration.

Sample Description

Sociodemographic Characteristics

The description of the sociodemographic characteristics of the sample is summarized in Tables 1 thru 5. Subjects were 108 females, ages 14 to 20, with a mean age of 16.98 years (SD= 1.61 years). The mean gynecological age of subjects (number of years since menarche) was 4.65 (S.D.= 1.91), with a range of one to 11 years. The racial-ethnic distribution of the sample was 36% Black, 35.2% white, and 28.8% other. The "other" group (n= 31) was primarily composed of Hispanics (45% of "other" group) and Asians (29%). Using Hollingshead's Two Factor

Index of Social Position, the social class of subjects was primarily middle and lower-middle class: 2.2% of the subjects were in Class II (upper-middle), 37.6% were in Class III (middle), 59.9% were in Class IV (lower-middle), and 4.3% were in Class V (lower). Social class was correlated with ethnicity ($F= 3.74$, $df= 2,90$, $p= .038$); caucasian subjects were more likely to be in higher social classes than subjects of other ethnic backgrounds ($t= 2.71$, $df= 90$, $p= .008$). Sixty percent of the Caucasian subjects were in the middle to upper-middle classes, compared with 38.2% of the Black subjects and 20.7% of the subjects of other backgrounds. In terms of religious affiliation, 41.7% of the subjects identified themselves as Protestant, 38.9% were Catholic, 7.4% belonged to other christian denominations, and 1.9% were other denominations; 10.2% of the sample claimed no religious affiliation. More than half (68.5%) of the subjects reported being not very, or not at all religious. In terms of family structure, 41.1% of the subjects lived with both parents, 37.3% lived with one parent only, 3.7% lived with a parent and a step-parent, and 16.8% lived with neither parent. Some of the subjects in this latter group lived with other relatives, although the exact number is unknown since this information was not routinely elicited from subjects.

TABLE 1

Age Distribution of Subjects in the Study

Subject's Age in Years	Number of Subjects (n= 108)	Percentage of Subjects
14 - 14.9	18	16.7
15 - 15.9	10	9.3
16 - 16.9	23	21.3
17 - 17.9	32	29.6
18 - 18.9	13	12.0
19 - 19.9	8	7.4
20 - 20.9	4	3.7

TABLE 2

Racial-Ethnic Characteristics of Sample

Racial-Ethnic Background	Number of Subjects (n= 108)	Percent of Subjects
Black	39	36.0
White	38	35.2
Hispanic	14	13.0
Asian	6	5.6
Pacific Islander	2	1.9
Other	2	1.9
Mixed Ethnicity	7	6.5

TABLE 3

Social Class Distribution of Subjects in the Study

Social Class (Hollingshead)	Number of Subjects (n = 93)	Percent of Subjects
Class I (Upper)	0	0.0
Class II (Upper-Middle)	2	2.2
Class III (Middle)	35	37.6
Class IV (Lower-Middle)	52	59.9
Class V (Lower)	4	4.3

TABLE 4

Degree of Religiosity Among Subjects in Study

Degree of Religiosity	Number of Subjects (n=108)	Percent of Subjects
Very Religious	19	17.6
Somewhat Religious	15	13.9
Not Very Religious	61	56.5
Not At All Religious	13	12.0

TABLE 5

Family Structure of Subjects in Study

Family Structure	Number of Subjects (n= 107)	Percent of Subjects
Lives with both parents	44	41.1
Lives with mother only	40	37.3
Lives with father only	1	0.9
Lives with mother and step-father	3	2.8
Lives with father and stepmother	1	0.9
Lives with neither parent	18	16.8
Total		100.0

Characteristics of the Clinic Visit

In terms of their clinic history (summarized in Tables 6 thru 8), over half (55.7%) of the subjects in the study had been patients at the clinic for a year or more; 18.9% were new patients at their first visit. Most subjects (58.8%) were seeing their health care provider for the first time on the day they entered the study. The largest single category of chief complaint bringing subjects to the clinic was gynecological in nature (39.6%). The remainder of the visits were for general checkups (18.8%), other specified problems (30.7%) or were unspecified (10.9%). The abundance of gynecological problems

reflects the fact that 42.6% of the subjects were from the gynecology clinic; the remainder were seen in one of the two general adolescent clinics.

Table 9 summarizes characteristics of the health care providers who saw subjects in the study. Subjects in the study were seen by one of 30 health care providers. Most subjects (63.6%) were seen by a female providers, and most were seen by fellows in adolescent medicine (44.4%) or pediatric residents (28.8%).

TABLE 6

History of Previous Clinic Visits Among Subjects

History of Visits to Clinic	Number of Subjects (n= 106)	Percent of Subjects
First Visit	20	19.8
Patient for Few Weeks	12	11.3
Patient for Few Months	15	14.2
Patient for Year or More	59	55.7
Total		100.0

TABLE 7

History of Previous Encounters with Providers

History of Visits with Provider	Number of Subjects (n= 106)	Percent of Subjects
First Time	62	58.8
Once Before	22	20.8
Twice Before	15	14.2
More Than Twice	7	6.6

TABLE 8

Reasons for Subjects Visit to the Clinic

Reason for Clinic Visit	Number of Subjects (n= 101)	Percent of Subjects
Gynecological	40	39.6
General Checkup	19	18.8
Other Specific Reason	31	30.7
Unspecified Reason	11	10.9
Total		100.0

TABLE 9

Characteristics of Providers Seen by Subjects in the Study

Provider Characteristic	Number of Subjects (n= 108)	Percent of Subjects
Provider Sex		
Female	68	63.3
Male	31	29.0
Seen by Providers of both sexes	8	7.5
Level of Training		
Specialist in Adolescent Medicine	11	10.2
Specialist in Training	48	44.4
Pediatric Resident	30	27.8
Medical or Nursing Student	19	17.6

Need for Approval

Subject's need for approval was measured using the Marlowe- Crowne Social Desirability Scale (SDS; Crowne & Marlowe, 1964).

Subjects scores on the SDS ranged from 5 to 29 (out of a possible 31), with a mean score of 16.38 and a standard deviation of 5.47. Comparison of sample values with normative data on 752 female college students (see Table 10) shows the two groups to be almost identical, the latter group yielding a mean score of 16.82 (SD= 5.50). Comparison of subjects' scores with other normative samples is presented in Appendix Q.

Need for approval was not associated with subjects' age (r= .00) or social class (r= .04), but was associated with race-ethnicity (F= 4.61, df= 2,103, p= .012) and the reporting of higher pre-examination anxiety (r= -.24,df= 103,p= .006) and post-examination anxiety (r=-.19, df= 102, p=.025). In terms of ethnicity, the highest need for approval scores were in Black subjects (mean= 18.32, SD= 4.91). Caucasian subjects had the lowest need for approval scores (mean= 14.64, SD= 5.03). Scores for subjects of other backgrounds fell between these two means (mean= 16.06, SD= 5.99). Subjects with a high need for approval also reported having significantly less anxiety prior to their medical examination than did subjects with lower need for approval scores.

TABLE 10

Need for Approval (SDS) in Experimental and Normative Samples

Percentile Rank Normative Samples (n=752 females)	SDS Raw Score	Cumulative Percent of Subjects in Current Sample (n=106)
1	5 or less	1.9
4	7 or less	5.7
9	9 or less	8.5
13	10 or less	13.5
18	11 or less	19.8
23	12 or less	26.4
29	13 or less	33.0
35	14 or less	38.7
41	15 or less	45.3
49	16 or less	50.0
59	17 or less	56.6
61	18 or less	63.2
68	19 or less	72.6
73	20 or less	76.4
79	21 or less	82.1
85	22 or less	86.8
89	23 or less	92.5
92	24 or less	93.4
96	26 or less	95.3
98	28 or less	99.1
99	29	100.0

Pre-Examination Anxiety

State anxiety, as measured by the Spielberger State-Trait Anxiety Inventory, (State-A Form) was assessed for all subjects prior to their examinations (STAIPRE). Trait anxiety was not measured in subjects. Scores on STAIPRE ranged from 20 (low anxiety) to 72. The mean

score among subjects was 38.10 (SD= 10.56, n= 107), which is comparable to norms reported for female high school juniors (mean= 37.57, SD= 11.76, n= 187).

Pre-examination anxiety was not associated with subjects' age (r= -.05), social class (r= .00), or ethnicity (F= 2.34, df= 2,104, p= .10). As mentioned previously, pre-examination anxiety was lower in subjects with a high need for approval (r= -.24).

The reliability (Chronbach's Alpha) of the STAI pre-measure in the current sample was .87; the mean inter-item correlation was .24 (range= -.11 to .61).

Post-Examination Anxiety

The mean level of state anxiety following subjects' examination was 35.06 (SD= 9.90). Subjects showed a significant decrease in anxiety following the examination (paired t-test; t= 3.33, df= 104, p= .001). The average decrease in anxiety following the examination was 2.94 (SD= 9.00).

The reliability of the STAI post-measure in the current sample was .87; the mean inter-item correlation was .25 (range= -.13 to .70).

The Analysis of Response Bias

Assignment of Subjects to Condition and Interviewer

Assignment to Condition.

Among the 108 subjects, 32 were in the face-to-face interview condition, 43 were in the questionnaire condition, and 33 were in the computer interview condition. The assignment of subjects to conditions was made according to a predetermined randomized assignment schedule in 101 of the subjects. The remaining seven subjects were assigned to the questionnaire condition when they completed their appointment, because both interviewers were still busy with other subjects. These subjects were given the questionnaires by the study coordinator. The unavailability of an interviewer appeared to be a random event, and was not associated with any pre-existing subject or provider characteristics. There were no significant differences between these seven subjects and subjects assigned in the traditional manner in terms of chronological age ($t= -.57$, $df= 106$, $p= .57$), gynecological age ($t= .00$, $df= 104$, $p= .99$), social class ($t= .36$, $df= 91$, $p= .72$), race (Chi-square= .19, $df= 2$, $p= .91$), religion (Chi-square= 3.25, $df= 3$, $p= .70$), religiosity ($t= .81$, $df= 106$, $p=.42$), need for approval ($t= -.89$, $df= 104$, $p= .38$), pre-examination anxiety ($t= .09$, $df= 105$, $p = .93$), how long they had been coming to the clinic

(Chi-square= .11, df= 2, p= .94), whether they had previously seen the same provider (Chi-square= .10, df= 1, p= .75), the reason they came to the clinic (Chi-square= .01, df= 1, p= .92), or the provider's level of training (Chi-square= .17, df= 3, p= .98).(8)

In terms of the equality of the three experimental groups (I, Q and C), the randomization procedure was successful in producing groups that were essentially equal on variables representing pre-experimental attributes. As shown in Table 11, subjects in the three groups did not differ significantly on chronological age (F= .93, df= 2,105, p= .40), gynecological age (F= .20, df= 2,103, p= .82), social class (F= .01, df= 2,90, p= 1.00), race (Chi-square= 2.36, df= 4, p= .67), need for approval (F= .41, df= 2,103, p= .67), or pre-examination anxiety (F= .51, df= 2,104, p= .60). There were also no differences between subjects in the three conditions in terms of religion (Chi-square= 5.93, df= 6, p= .73), religiosity (F= .06, df= 2,105, p= .094), the length of time they had been coming to the clinic (Chi-square= 3.52, df= 4, p= .47), or their reason for coming to the clinic (Chi-square= .43, df= 2, p= .80).

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(8) There were also no significant differences on these variables between the seven subjects given questionnaires by default and the other 36 questionnaire subjects.

TABLE 11

Characteristics of Subjects in the Three Conditions

Subject Attribute	Condition (Mode of Administration) Face-to-Face Interview	Questionnaire	Computer Interview
Age in Years			
Mean	16.68	17.03	17.21
S.D.	1.68	1.66	1.46
Gynecologic Age			
Mean	4.53	4.79	4.56
S.D.	1.64	2.23	1.71
Need for Approval			
Mean	17.10	15.97	16.20
S.D.	5.00	5.52	5.93
Pre-Examination Anxiety			
Mean	36.71	38.16	39.37
S.D.	9.85	11.31	10.37
Social Class (Number of Subjects)			
Class II	1	1	0
Class III	9	16	11
Class IV	16	18	17
Class V	0	4	0
Race-Ethnicity (Number of Subjects)			
Caucasian	8	18	12
Black	13	14	12
Other	11	11	9

Assignment to Interviewers.

Excluding the seven subjects who were given questionnaires by the study coordinator, 54.5% of the subjects were assigned to one interviewer, and 45.5% were assigned

to the other interviewer. The slight departure from 50% was due to the fact that one interviewer worked fewer days during the course of the study than the other interviewer. As shown in Table 12, the proportion of subjects assigned to each condition did not differ between interviewers (Chi-square= .60, df= 2, p= .74).

TABLE 12

Number of Subjects Run by Each Interview in Each Condition

Interviewer	Condition (Mode of Administration)			
	Face-to-Face Interview	Questionnaire	Computer Interview	Total
1	19	18	18	55
2	13	18	15	46
Total	32	36	33	101*

* Rows and columns do not sum to 108 due to 7 cases who were not run by either interviewer.

Subjects assigned to the two interviewers did not differ in terms of chronological age (t= .94, df = 99, p= .35), gynecological age (t= .82, df= 97, p= .42), social class (t= .43, df= 84, p= .67), race (Chi-square= 2.90, df= 2,

p= .24), religion (Chi-square= 4.15, df= 3, p= .25), religiosity (t= .43, df= 99, p= .67), need for approval (t= 1.74, df= 97, p= .09), pre-examination anxiety (t= .85, df= 98, p= .40), or the length of time they had been patients at the clinic (Chi-square= .75, df= 2, p= .69). Subjects assigned to the two interviewers did differ on their reasons for coming to the clinic (Chi-square= 4.92, df= 1, p= .027); the ratio of gynecological to other types of appointments was equal for subjects assigned to one interviewer, and was 1:3 for the other interviewer.

Creation of Scales to Measure Response Bias

The Measurement of Socially Undesirable Responses.

The creation of dependent variables to represent response bias was accomplished by building a number of different scales to assess response bias across a variety of different domains. Separate scales were built to measure the reporting of sexual behavior, substance use, symptomatology, and satisfaction (evaluation of the clinic visit). Items were selected for inclusion on a given scale apriori, and were scored for the socially undesirable response. Thus, subjects who acknowledged engaging in an undesirable behavior received a score of one (1) for the item, while other subjects received a zero (0). Subjects who did not respond to a question were given a score of zero (0).

The decision to score for the undesirable, rather than the desirable response was made in an effort to utilize all available data on subjects. If scoring had been oriented towards the desirable response, subjects who refused to answer the question or those whose responses were uncodeable would be excluded from the analysis. By scoring for undesirability, all subjects are included in all analyses. In addition, missing data on subjects may itself reflect a form of response bias. If a subject engages in undesirable behavior and does not wish to report that fact, she may falsify her response or simply not answer the question. This latter form of response bias cannot be reflected in a score which assesses socially desirable responses, but can be in a measure which scores for undesirable responses. It was originally planned that a separate response bias scale would be created which reflected subjects' evasiveness by counting the number of questions which were not answered. Missing data may be associated with factors other than evasiveness, such as computer malfunction, missing pages from a questionnaire, or an interviewer skipping over a page on the interview protocol. Non-response in such cases does not reflect evasiveness, and is confounded with mode of administration. Although non-response in situations such as these were not confounded in the current study (occur-

ring once in each condition), in general, scoring for the socially undesirable response may be a more accurate means of including the concept of evasiveness into a dependent measures of response bias, than would be a separate scale for missing values.

After scoring, items making up each scale were summed. High values on each response bias scale represent the acknowledgement of many socially undesirable behaviors, symptoms, or attitudes; low scores represent the acknowledgement of few undesirable behaviors, symptoms, or attitudes.

Five scales were built to measure response bias in specific behavioral, symptomologic and attitudinal domains. The items included on each scale and the scale reliabilities are described in Tables 13 and 14.

TABLE 13
Description of Scales to Measure Response Bias

Scale Name	Items Included On Scale	Mean* of Scale	Standard Deviation of Scale	Range of Scale
Sexual Behavior	kissing, petting above the waist, petting below the waist, masturbation, sexual intercourse, oral sex, number of sexual partners, frequency of intercourse, age at sexual debut.	4.58	2.39	0-9
Symptomatology-non-gynecologic	headaches, sleep well, tire easily, appetite, nausea, constipation, dizzy spells, diarrhea, seizure.	1.78	1.85	0-9
Symptomatology-gynecologic	vaginal discharge, vaginal infection, menstrual problems, pregnancy, abortion, test for venereal disease.	2.41	1.73	0-6
Substance Use	cigarettes, beer or wine, hard liquor, PCP, LSD, amphetamines, quaaludes, barbiturates, cocaine, marijuana, any others.	3.46	2.81	0-11
Satisfaction	did doctor understand concerns, did doctor show interest, satisfaction with visit, would return to clinic, would recommend clinic.	1.62	.57	1-4

* The Satisfaction scale was scored from 1=very positive about the visit, to 4=very negative about the visit. All other scales may be interpreted as representing the mean number of items on the scale endorsed by subjects.

TABLE 14

Alpha Reliability of Scales to Measure Response Bias

Scale Name	Chronbach's Alpha (standardized)	Number of Items	Mean Inter-Item Correlation
Sexual Behavior	.80	9	.31
Symptomatology-Non-Gynecologic	.71	9	.22
Symptomatology-Gynecologic	.70	6	.28
Substance Use	.82	11	.29
Satisfaction	.80	5	.44

In addition to the five scales described above, a sixth scale was created on which 12 selected items(9) representing a variety of domains were weighted by their exact social desirability scale value (SDSV). This was done to create a scale which would reflect more accurately response bias due to factors of social desirability. The items included on the scale were:

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(9) Items which were rated as being neutral or socially desirable were excluded from the scale, as were two "filler" items: "She is a shy person", and "She gets embarrassed easily".

1. She does not drink alcohol.
2. She has had sex with a number of different boys.
3. She has never been pregnant.
4. She has used a variety of drugs.
5. She sometimes masturbates.
6. She has had an abortion.
7. She smokes cigarettes.
8. She has used cocaine.
9. She does not bathe often.
10. She never uses drugs.
11. She has had oral sex.
12. She has never gone all the way and had sexual intercourse.

The SDSV's on items were provided by ratings made by a separate sample of adolescent females (see Appendix F). All but four of the items on the scale were originally phrased to reflect the presence of a potentially undesirable behavior (e.g., "She has had an abortion"). The four exceptions were items 1, 3, 10 and 12 (above). On these items, the phrasing was such that the absence, rather than the presence of an attribute, reflected the undesirable response (e.g., "She has never been pregnant"). As previously discussed, it was decided that all items on response bias scales would be scored for endorsement of socially undesirable attributes, rather than the absence of desirable attributes. Given the desire to maintain the integrity of the scale as a measure of socially undesirable responses, items 1, 3, 10 and 12 were rescored for the undesirable response.(10)

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(10) For example, item 3 ("She has never been pregnant") was originally scored as being a "somewhat desira-

On the weighted scale, subjects endorsing an item as true for them were given the SDSV of the item as their score; subjects who did not endorse the item as true were given a zero. These scores were summed to create the weighted response bias scale. The interrater reliability on the 12 items was .93 (Chronbach's alpha). The mean correlation between raters was .69 (range= .07 to .91).

Intercorrelations Among Response Bias Scales.

There were significant intercorrelations among the Sexual Behavior, Drug Use, and Gynecological Symptomatology scales. Subjects who reported engaging in many different sexual behaviors also reported having experienced more gynecological symptoms ($r= .57$, $df= 106$, $p< .001$), and reported using more drugs ($r= .63$, $df= 106$, $p< .001$). The reporting of gynecologic symptomatology and drug use were also correlated ($r= .38$, $df= 106$, $p<.001$).

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ble" (value= 3) attribute. Rescoring for the undesirable response, subjects who acknowledged having been pregnant were given a score of 7 ("somewhat undesirable"). Although studies have not demonstrated whether SDSV ratings of opposite statements generate reciprocal ratings, this method was used to avoid problems which arise from including both endorsed and non-endorsed items on the same response bias scale.

Factors Associated with Reporting in the Undesirable Direction

Interviewer Effects.

The two interviewers did not differ on the amount of undesirable information they elicited from subjects on all but one of the response bias scales. Interviewers did yield significantly different reports from subjects on drug use ($t = 2.67$, $df = 99$, $p < .01$). The mean difference in the number of drugs subjects run by the the interviewers reported using was 1.4. There were no interviewer differences on subjects' reports on sexual behavior ($t = .50$, $df = 99$, $p = .62$), gynecologic symptomatology ($t = -.20$, $df = 99$, $p = .84$), non-gynecologic symptomatology ($t = 1.27$, $df = 99$, $p = .21$), or satisfaction with the clinic visit ($t = -1.13$, $df = 98$, $p = .26$).

Sociodemographic Characteristics.

Subjects' scores on the five response bias scales did not differ as a function of socioeconomic status, religiosity, or religion. On specific scales, there were differences as a function of the subject's age and race.

With increasing age, subjects were more likely to report engaging in a variety of sexual behaviors ($r = .36$, $df = 106$, $p < .001$), to acknowledge having had gynecologic symptoms ($r = .36$, $df = 106$, $p < .001$), to use a variety of drugs ($r = .18$, $df = 106$, $p = .033$), and to report feeling

satisfied with their clinic visit (r= .27, df= 105, p= .003). There were no differences as a function of age in the reporting of non-gynecologic, "embarrassing" symptoms (r= .00).

There were significant differences on the reporting of sexual behaviors and substance use in subjects of different racial backgrounds (F= 5.22, df= 2,105, p= .007). Caucasian subjects reported engaging in a greater variety of sexual behaviors than subjects of "other" (non-Caucasian or Black) races (t= 3.12, df= 67, p<.005). Caucasian subjects also reported engaging in more sexual behaviors than Blacks, but this difference only approached significance (t= 1.95, df= 68, p= .055). In terms of drug use, Caucasian subjects reported using significantly more drugs than Black subjects (t= 3.26, df= 75, p<.005).

Age and ethnicity were not associated in the sample (F= 1.33, df= 2,105, p= .27), and made equal contributions to the variance in reporting on sexual behavior and substance use.

As with most findings pertaining to race-ethnicity, there is a question about whether race or social class is the crucial factor involved. Social class was associated with ethnicity in the current sample (p= .038) although differences in social class were not associated with different patterns of reporting on sexual behavior or sub-

stance use (correlation range= .01 to .07). However, a trend for the interaction of race and social class on reporting of sexual behaviors did emerge (F= 2.98, df= 5,87, p= .056). High social class was associated with the reporting of fewer sexual behaviors in both Caucasian and non-Black subjects. In contrast, among Black subjects, high social class was associated with reporting of more involvement in sexual behaviors.

Need for Approval.

The issue arises as to whether the observed relationship between the reporting of sexual and substance use behaviors reflect true differences in behavior between subjects of different ethnic-racial backgrounds or whether a factor such as need for approval is involved. Need for approval (as measured by the Marlowe-Crowne SDS), was associated with the reporting of fewer sexual behaviors (r= -.21, df= 104, p= .016) and less extensive drug use (r= -.27, df= 104, p=.003). There was a trend for subjects with a high need for approval to report feeling more satisfied with their clinic visit (r= .15, df= 103, p= .067). Unfortunately, need for approval and ethnicity were confounded in the current study; black subjects were more likely to show high need for approval and Caucasian subjects were less likely to show high need for approval. Multivariate analysis of variance on the five domain-spe-

cific response bias scales showed no effect for need for approval (F= 1.36, p= .251) and a trend for ethnicity (F= 1.97, p= .095). Regression analysis on individual scales showed both ethnicity and need for approval to make significant, unique contributions to the variance accounted for in reporting of sexual behavior and drug use, regardless of entry order into the equation. Thus, it is unlikely that differences in reported sexual and drug use behavior between subjects of different racial-ethnic backgrounds simply reflect actual behavioral differences; a portion of those differences can be accounted for by the subject's need for approval. The reporting of sexual behavior was more highly associated with ethnicity (r2= .08) than need for approval (r2= .04). On reporting of drug use the opposite was true; need for approval accounted for 7% of the variance, while ethnicity accounted for approximately 4%. There was no interaction between need for approval and ethnicity on any response bias scale (F= .92, p= .47).

Anxiety and Response Bias - Hypothesis 1.

It was hypothesized that high levels of state anxiety would be associated with less reporting in the socially undesirable direction than low levels of anxiety. Multivariate analysis of covariance using need for approval as a covariate on the five domain-specific response bias

scales showed a significant effect for anxiety (F= 4.78, p= .001). Univariate tests indicated that subjects differed, as a function of state anxiety level, on the reporting of sexual behavior (F= 4.65, df= 1,99, p= .033), non-gynecologic, embarrassing symptoms (F= 9.85, df= 1,99, p= .002), and satisfaction (F= 7.65, df= 1,99, p= .007). Only in the case of sexual behavior did subjects level of anxiety function as predicted; subjects with high anxiety reported engaging in fewer sexual behaviors than did subjects with low anxiety. On non-gynecologic symtomatology and satisfaction, high anxiety was associated with the reporting of more symptomatology and less satisfaction with the clinic visit.

Mode of Administration and Anxiety - Hypothesis 2.

It was hypothesized that subjects interviewed in the face-to-face condition would show greater levels of state anxiety than subjects who completed self-administered forms (questionnaire or computer interview). This hypothesis was not supported. State anxiety measured at the conclusion of the study did not differ among subjects interviewed in the three conditions (R= .11, df= 2,102, p= .55). Mean scores on anxiety for subjects in the face-to-face interview, questionnaire and computer conditions were 33.42 (SD= 8.24), 35.83 (SD= 10.69) and 35.63 (SD= 10.39), respectively. Controlling for levels of

pre-examination anxiety, there was also no relationship between state anxiety and mode of administration (F= .36, df= 2,100, p= .70). The average decrease in anxiety at the conclusion of the study for subjects in the face-to-face interview, questionnaire and computer interview conditions was 3.25 (SD= 7.65, t= 2.36, p<. 05), 2.32 (SD= 8.86, t= 1.68, p= .10), and 3.42 (SD= 10.52, t= 1.84, p= .075), respectively.

Mode of Administration and Response Bias - Hypothesis 3.

It was also hypothesized that subjects interviewed in the face-to-face condition would less frequently report socially undesirable behaviors, attitudes and symptoms. Multivariate analysis of variance showed no effect for condition on the five domain-specific response bias scales (F= .46, p= .92). There was also no relationship between mode of administration and reporting on the weighted response bias scale (R2= .02, F= 2.09, df= 2,105, p= .15). Table 15 shows the mean scale scores among subjects in the three conditions, and Table 16 shows the size of the effect for condition on each of the response bias scales.

TABLE 15

Mean (and Standard Deviation) of Subjects' Scores on Response Bias Scales by Mode of Administration

Response Bias Scale	Condition (Mode of Administration) Face-to-Face Interview	Questionnaire	Computer Interview
Sexual Behavior	4.22 (2.52)	4.74 (2.40)	4.73 (2.28)
Substance Use	2.44 (2.60)	3.44 (2.40)	3.00 (2.46)
Gynecologic Symptomatology	2.22 (1.84)	2.70 (1.79)	2.45 (1.54)
Non-gynecologic Symptomatology	2.22 (1.77)	1.86 (2.04)	1.94 (1.62)
Satisfaction Scale	1.62 (.63)	1.63 (.53)	1.61 (.57)
Weighted Scale	29.33 (21.39)	36.79 (21.15)	34.40 (20.95)

TABLE 16
Regression Analyses on Response Bias Scales

Dependent Variable	Variable Entered	R2	sr2	F(model)	df
Sexual Behavior	Condition: face-to-face interview vs. other methods	.009	.009	1.06	1,106
	Questionnaire vs. Computer	.009	.000	.52	2,105
Substance Use	Condition: face-to-face interview vs. other methods	.022	.022	2.42	1,106
	Questionnaire vs. Computer	.028	.005	1.50	2,105
Gynecologic Symptomatology	Condition: Face-to-face interview vs. other methods	.009	.109	1.05	1,106
	Questionnaire vs. Computer	.013	.003	.70	2,105
Non-gynecologic Symptomatology	Condition: Face to face interview vs. other methods	.007	.007	.70	1,106
	Questionnaire vs. Computer	.007	.000	.37	2,105
Satisfaction	Condition: Face to face interview vs. other methods	.000	.000	.00	1,105
	Questionnaire vs. computer	.000	.000	.00	2,104
Weighted Scale	Condition: Face to face interview vs. other methods	.019	.019	2.09	1,106
	Questionnaire vs. Computer	.022	.002	1.54	1,105

Need for Approval and Response Bias - Hypothesis 4.

Although it was hypothesized that need for approval would account for less of the variance in reporting behavior than mode of administration, this hypothesis was clearly not supported. As shown in Table 17, mode of administration accounted for 0% to 2.7% of the variance in reporting on the six response bias scales. In contrast, need for approval accounted for up to 4.3% of the variance in reporting. There were also no significant interactions between mode of administration and need for approval (F's= .22 - 1.78).

TABLE 17

Effect Sizes for Mode of Administration and Need for Approval on Reporting in the Undesirable Direction

Response Bias Scale	Mode of Administration (r2)	Need for Approval (r2)
Sexual Behavior	.009	.043
Substance Use	.028	.072
Gynecologic Symptomatology	.013	.013
Non-gynecologic Symtomatology	.007	.004
Satisfaction	.000	.022
Weighted Scale	.022	.036

Adolescents' Affective Responses to the Gynecological Examination

Description of the Pelvic Subsample

For analyses pertaining to pelvic examinations, a subsample of subjects who had ever had a pelvic examination was utilized. This group of subjects are refered to as the pelvic subsample. Eight-five of the 108 subjects (78.8%) reported having had at least one pelvic examination, either prior to or during their appointment on the day of the study.

Subjects in the pelvic subsample ranged in age from 14 to 20 years, with a mean age of 17.30 years (SD= 1.47). The mean gynecologic age was 4.9 years (SD= 1.84). As expected, these subjects were older (t= 4.31, df= 106, p<.001) and had been menstruating longer (t= 2.68, df= 104, p= .009) than subjects who had never had a pelvic examination. Most (82.4%) of the subjects with a history of pelvic examinations were sexually active. The number of sexual partners reported was not correlated with age in sexually active subjects (r= .10, df= 62, p= .220). The racial-ethnic distribution of subjects was 38.8% Caucasian, 36.5% Black, and 24.7% of other backgrounds. The distribution of social class was 2.7% Class II, 38.8% Class III, 57.1% Class IV, and 4.1% Class V. Twenty-one subjects in the pelvic subsample were interviewed in the traditional face-to-face manner, 35 received questionnaires, and 29 were interviewed by computer.

There were no differences between subjects in the pelvic subsample and subjects who had never had a pelvic examination in terms of race (Chi-square= 3.74, df= 2, p= .15), social class (Chi-square= .63, df= 3, p = ..89), need for approval (t= .05, df= 104, p = .96), pre-examination anxiety (t= .81, df= 105, p = .99), or the interviewer (Chi-square= .00, df= 1, p = .99) or condition (Chi-square= 5.11, df= 2, p= .08) to which they were assigned.

Subjects were asked whether they thought they would have a pelvic exam on their visit; there was congruence between subjects expectations and actual outcome of the visit in 85.7% of the cases (see Table 18).

TABLE 18

Congruence Between Subjects Expectations About Having a Pelvic Exam and Whether They Did Have a Pelvic Exam

SUBJECT'S EXPECTATION	ACTUAL VISIT Had Pelvic	No Pelvic	TOTAL
Expected a Pelvic	36	8	44
Did not expect pelvic	1	14	15
Had no expectations	8	16	24
TOTAL	45	38	83

Forty-five (42.1%) subjects in the pelvic subsample had a pelvic examination on the day they entered the study. Reporting in reference to the pelvic examination in these subjects thus represents a current recollection. Five of these subjects had their first pelvic examination on the day they entered the study, three subjects had one previous exam, 11 had two or three prior examinations, eight subjects had four to five, and 16 had had six or

more pelvic examinations. Two subjects did not report on their prior history of pelvic examinations.

Forty subjects had pelvic examinations on prior occasions and gave retrospective accounts of their last examination. Among these subjects, 13 had a history of one prior pelvic exam, ten had two or three previous examinations, eight subjects had four or five, and eight subjects had six or more pelvic exams. One subject did not report on her history of pelvic examinations. For subjects who gave retrospective accounts of their last pelvic examination, 97.4% had their last pelvic examination within the previous year, 73.7% within the previous six months, 47.4% within the prior month, and 36.8% had their last pelvic exam within the two week period preceeding their entry into the study. Two subjects did not report on when their last exam took place.

Overall, subjects who had a history of more pelvic exams were older ($r = .29$, $df = 79$, $p = .004$) and reported having sex with more partners ($r = .20$, $df = 66$, $p = .047$) than subjects with a less extensive history. The number of pelvics was not associated with ethnicity ($F = 1.01$, $df = 2,79$, $p = .37$).

There were no differences between subjects who had a pelvic exam on the day they were questioned and those who reported prior examinations in terms of age ($t = .38$, $df = 82$, $p = .71$), gynecologic age ($t = .71$, $df = 80$, $p = .48$),

race (Chi-square= 1.55, df= 2, p= .46), social class (Chi-square= 4.12, df= 3, p= .25), or their assignment to interviewer (Chi-square= .06, df= 1, p= .83) or condition (Chi-square= .14, df= 2, p= .93).

Among subjects who had a pelvic examination on the day they entered the study, 24 were seen by female providers, 13 were seen by a male provider, and seven were seen by providers of both sexes. Over half (55.6%) were seen by providers specializing in adolescent medicine; the remainder were seen by pediatric residents (26.7%) or students (17.8%). Sixty-two percent of the subjects who had pelvic examinations specified that their visit was gynecological in nature, 13.3% said they were at the clinic for a checkup, 13.3% gave other specific reasons for their visit, and 8.9% said they were at the clinic for a followup visit of unspecified nature. One subject did not specify why she came to the clinic. Among subjects who cited gynecological problems, eight were at the clinic for birth control, eight for reasons pertaining to pregancy or abortion, and six for vaginal infections.

Information Subjects Reported Receiving About Pelvic Exams

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(11) Subjects refers to all respondents in the pelvic subsample, regardless of whether or not they had a pelvic examination the day of the study.

Subjects(11) reported receiving most of their information about pelvic examinations from friends; 64.7% of the subjects said they talked with friends about pelvic exams, 40.5% said they talked with their mothers, and 63.1% said they had discussed pelvic exams with other people. Among subjects who said they had talked with others about pelvic exams, 73.9% mentioned health care providers, 21.3% mentioned other female relatives, 2.2% mentioned school personnel, and 2.2% mentioned other males. As shown in Table 19, subjects most frequently reported hearing information which focused on descriptions of the examination procedure (22.9% of responses) and the importance of having pelvic exams (19.7%). However, the type of information subjects heard varied considerably as a function of who they received the information from. Messages from friends, the most frequently mentioned information source, were noteably negative: 64.7% of the responses focused on pain, self-consciousness, fear/anxiety, physical or psychological discomfort, or other negative aspects of pelvic exams. The most common specific message from peers was that pelvic examinations were painful (14.7%). In contrast, messages from mothers and health care providers focused heavily on descriptions of the procedure (30.6% and 44.7%) and its importance (36.1% and 28.9%).

TABLE 19

Information Subjects Reported Receiving About Pelvic Examinations

TYPE OF INFORMATION	INFORMATION SOURCE				
	Friends	Mother	Health Care Provider	Other	TOTAL
Description of procedure	7	11	17	1	36
Importance of procedure	5	13	11	2	31
Exams are painful	10	0	2	3	15
Exams are not painful	0	3	4	1	8
Physically uncomfortable	4	1	1	0	6
Other physical sensations	3	0	0	2	5
Self-Consciousness/ embarrassment	2	0	0	1	3
No self-consciousness	0	0	0	0	0
Fear/Anxiety	6	0	0	1	7
No fear/anxiety	0	2	1	1	4
Sexual Issues	2	0	0	0	2
Provider Attributes	1	0	0	0	1
Other	5	1	2	0	8
Other Positive	2	2	0	1	5
Other Negative	21	3	0	2	26
TOTAL RESPONSES	68	36	38	15	157

Anxiety in the Pelvic Subsample

Subjects Sources of Concern About Pelvic Exams.

Concerns which have been hypothesized to contribute to anxiety about pelvic exams were examined in a series of eight questions. Each question asked subjects whether they had experienced a given concern, and the degree to which the concern was experienced (Table 20).

The most frequently endorsed concern about pelvic exams was fear of the discovery of pathology; 72.6% of subjects said they were concerned at least a little that the doctor would find something wrong with them as a result of the examination. Other frequently endorsed concerns were those pertaining to fear of pain (65.5%), concerns about personal cleanliness (46.4%) and odor (32.1%) and concern that the provider would discover something about their sexual practices through the examination (24.4%). Less common concerns were fears that the examination would damage ones sexual organs (17.9%) or that the provider would have knowledge about whether the subject was a virgin (11.5%). Concern about virginity was present in 46.7% (n= 14) of the subjects who were not sexually active.(12)

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(12) Concerns pertaining to virginity were excluded from subsequent analyses since the question was not consistently asked of subjects who were sexually active.

TABLE 20

Subject's Concerns About Pelvic Examinations

CONCERN	Number of Subjects Expressing Concern (N = 84) Not At All	A Little	Some	Great Deal
Embarrassed About Undressing	36	29	12	7
Fear of Pain	29	22	19	14
Fear of Discovery of Pathology	23	26	18	17
Doctor Could Tell if Virgin*	69	5	2	2
Have A Noticable Odor	57	17	6	4
Doctor Would Know About Sex Practices	62	6	9	5
Exam Would Damage Female Organs	69	9	4	2
Wonder if Clean Enough for Exam	45	22	12	5

* n = 78 due to missing data

A factor analysis of subjects' concerns about pelvic examinations yielded two factors which together explained 51.6% percent of the variance in pelvic concerns. Varimax rotation of factors showed items loading on the first

factor (34.% of the variance, Eigenvalue= 2.45) to include concerns about odor, personal cleanliness, and embarrassement about undressing for the exam (see Table 21). This factor appears to represent concerns revolving around issues of self-consciousness. The second factor (16.7% of the variance, Eigenvalue= 1.17) included all other concerns, and appears to represent potential aversive effects of pelvic examinations.(13) Factor scores were created by taking the mean score for items loading on the factor. The correlation between Factor 1 and Factor 2 was .77.

Factor scores among subjects did not differ as a function of subjects' age, race, history of pelvic examinations, or whether the subject had a pelvic exam the day of the study. There was an association between subjects need for approval and the reporting of concerns. Subjects with a high need for approval were less likely to report having concerns about self-consciousness in reference to pelvic examinations ($r= -.28$, $df= 80$, $p= .006$). Concerns pertaining to self-consciousness were also associated

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(13) It could be argued that the item about providers' awareness of the subjects sexual activity should not have been included in the second factor, due to its low factor loading. Analyses examining the relationship between factor scores and anxiety were conducted with this item excluded. The results are not presented here, since they did not differ from those in which the item was included.

TABLE 21

Factor Analysis of Subjects Concerns About Pelvic Exams

	Factor Loadings Varimax Rotation	
	FACTOR 1	FACTOR 2
Wondered if clean enough for the exam	.74775	.16883
Might have an odor that doctor would notice	.73596	.07190
Embarrassed about undressing	.65545	.41126
Afraid exam would hurt	.33058	.74001
Exam could damage female organs	-.40294	.71989
Afraid doctor would find something wrong	.24658	.50443
Doctor could tell about sexual activities	.24657	.40798

with less extensive sexual experience(14) in all subjects (r= -.22, df= 76, p = .028), subjects who had a pelvic examination the day of the study (r= -.30, df= 39, p= .025), and subjects who expected a pelvic examination (r= -.31, df= 39, p= .025). The correlation between self-consciousness and limited sexual experience remained sig-

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(14) Sexual experience was scored on a scale of 0-8. Subjects who were not sexually active (had not engaged in sexual intercourse) were given a score of 0. Sexually active subjects were scored on the basis of how many different sexual partners they had ever had. Subjects who reported having more than 8 different partners (n= 2) were given a score of 8.

nificant when controlling for variations in need for approval (partial correlation= -.20, df= 69, p= .04). There was no correlation between the reporting of sexual experience and need for approval, suggesting that the effect of need for approval was reflected primarily in terms of unwillingness to report concerns about self-consciousness.

Subjects' specific concerns about pelvic examinations varied as a function of their age, history of previous examinations, sexual experience, and need for approval. Subjects with a high need for approval were less likely to report having concerns about whether they had an odor (r= -.38, df= 80, p= .000). Older subjects reported experiencing more concern about whether they had an odor than did younger subjects (r= .30, df= 82, p= .003). This remained true even when controlling for need for approval (partial correlation = .31, df= 77, p= .002). Subjects with less sexual experience were more embarrassed about undressing for the pelvic exam (r= -.33, df= 78, p= .001) and were more concerned that the examination would be painful (r= -.36, df= 76, p= .001) than were subjects with more sexual experience. Subjects who had had fewer pelvic examinations also reported greater degrees of concern about embarrassment (r= -.34, df= 80, p= .001) and pain (r= -.24, df= 80, p= .015). There was a

trend for subjects with more sexual experience to report more concerns about pathology (r= .18, df= 80, p= .058), perhaps as a function of having experienced more gynecologic pathology. Concerns about pathology were not, however, associated with a history of vaginal infection (r= .05, df= 77, p= .33).

In subjects who had a pelvic examination the day of the study, these relationships were essentially the same. There was a trend for older subjects to report more concerns about odor (r= .24, df= 43, p= .058). Less extensive sexual experience was associated with more concerns about embarrassment (r= -.36, df= 40, p= .009) and pain (r= -.43, df= 40, p= .002). Subjects who had fewer pelvic examinations were also more likely to report concerns about embarrassment (r= -.48, df= 41, p= .001) and pain (r= -.45, df= 41, p= .001).

Pre-Examination Anxiety.

Pre-examination anxiety (STAIPRE) was measured prior to subjects' examinations. Subjects had a mean pre-examination anxiety score of 37.67 (SD= 10.04). Scores ranged from 20 to 72. This was not significantly different from subjects who never had a pelvic examination (t= .81, df= 105, p= .42), or subjects in normative samples (t= .64, df= 270, p= .52).

There was no difference in pre-examination anxiety between subjects who had a pelvic exam the day of the study and those who reported on previous examinations ($t = .31$, $df = 81$, $p = .76$). There were also no differences between subjects who had no expectations about whether they would have a pelvic exam and subjects who had either a positive or negative expectation ($t = .50$, $df = 80$, $p = .62$), or between subjects who thought they would have a pelvic and those who thought they would not ($t = .49$, $df = 55$, $p = .63$).

As reported earlier, need for approval was associated with the reporting of low levels of pre-examination anxiety ($r = -.24$, $df = 80$, $p = .016$). This association was not found in subjects who expected a pelvic examination ($r = -.08$, $df = 39$, $p = .300$). Since results pertaining to pre-examination anxiety are presented only for subjects who expected a pelvic exam, need for approval was not used as a covariate.

Pre-examination anxiety in subjects who expected a pelvic examination was not associated with the types of information they reported having heard about pelvic examinations, but was associated with having concerns about pelvic examinations ($R = .47$, $df = 2,40$, $p = .008$). Regression analysis of factor scores on pre-examination anxiety indicated that concerns pertaining to both self-con-

sciousness and aversive consequences of pelvic exams had significant semi-partial correlations with pre-examination anxiety, regardless of their order of entry into the regression equation. Zero-order correlations of Factor 1 (self-consciousness) and Factor 2 (aversive consequences) with pre-examination anxiety were .36 and .41, respectively ($p = .017$; $p = .006$). Specific concerns significantly correlated with pre-examination anxiety were those pertaining to fears of discovering pathology ($r = .47$, $df = 41$, $p < .001$), embarrassment about undressing for the exam ($r = .35$, $df = 41$, $p = .012$), concern about personal cleanliness ($r = .30$, $df = 41$, $p = .027$), and fear of pain ($r = .26$, $df = 41$, $p = .047$). (See Table 22).

TABLE 22

Relationship of Pre-Examination Anxiety and Specific Concerns About Pelvic Exams

Subject's Concern	Pearson r	N of cases	p value
Embarrassed About Undressing	.35	43	.012
Fear of Pain	.26	43	.047
Fear of Discovery of Pathology	.47	43	.001
Have A Noticable Odor	.23	43	.068
Doctor Would Know About Sex Practices	.11	43	.232
Exam Would Damage Female Organs	.16	43	.153
Wonder if Clean Enough for Exam	.30	43	.027

Hypothesis 1.

It was hypothesized that pre-examination anxiety would be associated with subjects' age, race, number of previous pelvic examinations, and sexual experience. Among subjects who expected a pelvic exam, the multiple correlation (R) of these variables with pre-examination anxiety was .28 (df= 5,32, p= .741). As shown in Table 23, at no step in the equation did any of these variables show a significant association with pre-exam anxiety.

TABLE 23
Regression of Subjects' Background Characteristics on Pre-Examination Anxiety

Step of Equation	Variable Entered	Multiple R	R2	F (Equation)	df	sr2
1	Race-Ethnicity	.17	.03	.55	2,35	.03
2	Number of Pelvic Exams	.17	.03	.36	3,34	.00
3	Chronological Age	.26	.07	.61	4,33	.03
4	Sexual Experience	.28	.08	.55	5,32	.01

Anxiety During the Pelvic Examination.

Assessments of anxiety during the pelvic examination were provided by subjects' self-reports on the ACL subscale assessing anxiety (ANXACL) and a separate question which asked subjects how nervous they felt during their last examination. On the 12-item ACL scale, subjects endorsed an average of 3.5 items (SD= 3.4, range= 0-12). On the question asking subjects how much anxiety they felt, most subjects (70.6%) reported feeling at least some degree of anxiety during the pelvic examination (see Table 24).

TABLE 24

Subject's Reported Degree of Anxiety During Pelvic Exam

Degree of Anxiety	Number of Subjects	Percent of Subjects
no anxiety	25	29.4
a little anxious	26	30.6
fairly anxious	18	21.2
very anxious	7	8.2
extremely anxious	9	10.6

Given the high correlation between the two measures of anxiety during the examination (r= .55), the measures were combined to form a single measure of subjects'

self-reported level of anxiety (SUBANX; Chronbach's alpha= .87). Subjects who reported having no anxiety were given a score of zero; subjects who acknowledged having some anxiety were given scores representing the degree of anxiety (1-4). Items were summed to form the scale.

Regression analyses indicated that subjects who reported having concerns about pelvic examinations (Factors 1 and 2) also reported feeling anxious during the pelvic exam ($R= .58$, $df= 2,79$, $p= .000$). Variations in reported anxiety were most highly correlated with concerns pertaining to aversive consequences of pelvic exams ($sr2= .10$, $df= 1,80$, $p<.001$). Concerns about self-consciousness were associated with anxiety during the pelvic exam only when entered first into the equation. (zero-order correlation = .32, $df= 79$, $p= .003$).

The relationship between specific concerns and reported anxiety during the pelvic exam are shown in Table 25 . All specific concerns with the exception of concerns pertaining to odor were associated with reports of high anxiety during the examination.

This relationship between subjects' concerns about pelvic exams and their reports of anxiety during the pelvic exam among subjects in the entire pelvic subample was essentially the same among the group of subjects who had a pelvic exam the day of the study. Concerns about pel-

TABLE 25

Relationship Between Subjects Concerns About Pelvic Exams and Reported Anxiety During the Pelvic Exam

Subject's Concern	Pearson r	N of cases	p value
Embarrassed About Undressing	.40	84	.000
Fear of Pain	.51	84	.000
Fear of Discovery of Pathology	.39	84	.000
Have A Noticable Odor	.12	84	.143
Doctor Would Know About Sex Practices	.20	82	.038
Exam Would Damage Female Organs	.36	84	.000
Wonder if Clean Enough for Exam	.23	84	.018

vic exams were associated with the reporting of more anxiety during the examination ($R = .70$, $df = 2,41$, $p < .001$). Only concerns pertaining to aversive consequences of pelvic examinations were associated with anxiety ($sr2 = .42$, $df = 1,41$, $p < .001$).

In subjects who expected and had a pelvic exam, high levels of pre-examination anxiety were associated with reports of feeling anxious during the examination (r=

.37, df= 37, p= .014). Anxiety during the exam did not differ as a function of whether subjects expectations about whether they would have a pelvic examination were met, or not met(15) (t= -.78, df= 57, p= .438).

Hypothesis 2.

It was hypothesized that the highest levels of anxiety during the pelvic examination would be reported by subjects who were young, sexually inexperienced, who had a history of few pelvic examinations, and who were not Caucasian or Black. Examination of zero-order correlations showed a significant association between anxiety and limited sexual experience (r= -.20, df= 77, p= .038). Much of this association was due to the differences in anxiety reported by subjects who were sexually active, and those who were not (t= 2.05, df= 83, p= .044). However, the set of these variables were not significantly associated with the reporting of anxiety during the pelvic examination (R= .26, df= 5,70, p= .44). As shown in Table 26, at no step in the equation did any of these variables contribute significantly to the variance accounted for in anxiety during the examination.

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(15) Subjects expectation were not met it they expected a pelvic exam and did not have one, or if they did not expect a pelvic examination and did have one.

TABLE 26
Regression of Subjects' Background Characteristics to Reports of Anxiety During the Pelvic Examination

Step of Equation	Variable Entered	Multiple R	R2	F (Equation)	df	sr2
1	Race-Ethnicity	.13	.02	.61	2,73	.02
2	Number of Pelvic Exams	.17	.03	.73	3,72	.01
3	Chronological Age	.19	.04	6.96	4,71	.01
4	Sexual Experience	.26	.07	9.77	5,70	.03

Among subjects who had a pelvic exam on the day of the study, an additional variable was added to the equation: the sex of the provider who performed the pelvic examination. The correlation between the set of predictor variables and SUBANX was R= .62 (df= 6,33, p= .01). As shown in Table 27, subjects with a history of few pelvic exams reported higher anxiety than those with more experience (sr2= .24, t= -3.37, df= 1,36, p<.002). Other variables were not significant, although there was a trend for younger subjects and for those with limited sexual experience to report higher anxiety (sr2= .06, p= .08; sr2= .07, p= .07).

TABLE 27
Regression of Subjects' Background Characteristics on Reports of Anxiety During the Pelvic Examination in Subjects who Had a Pelvic Exam the Day of the Study

Step of Equation	Variable Entered	Multiple R	R2	F (Equation)	df	sr2
1	Race-Ethnicity	.13	.02	.31	2,37	.02
2	Number of Pelvic Exams	.50	.25	4.05	3,36	.24
3	Chronological Age	.56	.32	4.04	4,35	.06
4	Sexual Experience	.62	.38	4.21	5,34	.07
5	Sex of Provider	.62	.38	3.43	6,33	.00

Post-Examination Anxiety.

Post-examination anxiety was assessed by the STAI, administered after subjects saw their provider, at the conclusion of the study. Table 28 shows the levels of anxiety in subjects prior to and following their appointments. Among all subjects, the mean post-examination anxiety score was 35.06 (SD= 9.82), representing a significant decrease in anxiety (paired t-test, t= 2.44, df= 82, $p<.05$). Examination of subsamples of subjects showed that the decrease in anxiety among subjects who thought they might have a pelvic was also significant (t= 2.02, df= 40, p= .05). In subjects who had a pelvic examination the day of the study, the decrease approached significance (t= 2.00, df= 43, p= .052). Decreases in anxiety after the examination were not significant among subjects who did not have a pelvic examination on the day of the study (t= 1.40, df= 38, p= .17), those who had no expectations about whether they would or would not have a pelvic exam (t= .98, df= 24, p= .34), or those who did not expect to have a pelvic examination (t= 1.38, df= 15, p= .19).

TABLE 28
Pre-Examination and Post-Examination Anxiety
Among Subjects in the Study

Sample or Subsample	STAI Pre-Examination N	Mean	S.D.	STAI Post-Examination N	Mean	S.D.	DIFFERENCE (Pre-Post) N	Mean	S.D.
Total Sample	107	38.10	10.56	105	35.06	9.90	104	2.94	9.00
Pelvic Sample*	84	37.67	10.04	83	35.06	9.82	82	2.42	8.95
Subjects Who Had A Pelvic On The Study Day	44	38.10	9.18	44	35.46	9.06	43	2.56	8.40
Subjects Who Had A Previous Pelvic Exam	39	37.42	11.04	38	34.90	10.71	38	2.21	9.75
Subjects Who Expected A Pelvic Exam	42	37.74	10.20	40	34.71	9.28	40	2.73	8.53
Subjects Who Did Not Expect A Pelvic Exam	15	36.30	8.21	15	33.86	10.14	15	2.44	6.85
Subjects Who Had No Expectations	24	38.69	11.36	24	36.49	11.01	24	2.20	11.05
Subjects Who Never Had A Pelvic Exam	23	39.67	12.40	22	35.04	10.41	22	4.87	1.95
Subjects having their first pelvic exam	5	36.20	10.09	5	33.60	7.27	5	2.60	10.46

* Subjects who ever had a pelvic examination.

As shown in Table 29, subjects who had a pelvic examination the day of the study who reported feeling anxious during the exam were not significantly more likely to show high levels of post-examination anxiety (r= .19, df= 38, p= .12). Subjects who expressed concerns pertaining to potential aversive consequences of pelvic exams (Factor 2) showed higher post-exam anxiety (r= .30, df= 41, p= .047), although as a set pelvic concerns in general were not associated with high post-examination anxiety (R= .32, df= 2,40, p= .11). Examination of specific concerns showed higher post-exam anxiety in subjects who reported having greater concerns about pain (r= .26, df= 42, p= .046) and personal cleanliness (r= .30, df= 42, p= .024). There was a trend for subjects who reported having greater concerns about the discovery of pathology to also report feeling more anxious after the examination (r= .20, df= 42, p= .078).

Hypothesis 3.

Regression analysis examining the relationship between post-examination anxiety and subjects' age, race, sexual experience, history of pelvic examination, and the sex of the provider yielded a multiple correlation of .35 (df= 6,32, p= .63; Table 30). None of the subject characteristics hypothesized to affect post-examination anxiety were associated with anxiety after the examination.

TABLE 29
Correlations Among Measures of Anxiety Used in the Study

	FACTOR 1+	FACTOR 2++	STAIPRE	SUBANX
FACTOR 2	.42 (82) p=.000			
STAIPRE	.36 (43)* p=.017	.41 (43)* p=.006		
SUBANX	.32 (82) p=.003	.57 (82) p=.000	.37 (39)*** p=.014	
STAIPOST	.21 (43)* p=.171	.30 (43)* p=.047	.60 (82) p=.000	.23 (44)* p=.066

\+ Factor 1 concerns were those pertaining to self-consciousness.

++ Factor 2 concerns were those pertaining to potentially aversive consequences of pelvic exams.

* subjects who expected a pelvic exam

** subjects who had a pelvic exam the day of the study

*** subjects who expected and had a pelvic exam

Numbers in parentheses represent the number of subjects.

TABLE 30
Regression of Subjects' Background Characteristics on Post-Examination Anxiety

Step of Equation	Variable Entered	Multiple R	R2	F (Equation)	df	sr2
1	Race-Ethnicity	.21	.05	.85	2,36	.05
2	Number of Pelvic Exams	.24	.06	.71	3,35	.01
3	Chronological Age	.27	.07	.66	4,34	.01
4	Sexual Experience	.27	.07	.57	5,33	.00
5	Sex of Provider	.35	.12	.74	6,32	.05

Other Affective Responses to the Pelvic Examination

In addition to anxiety, a number of other (positive and negative) reactions to pelvic examinations were assessed in subjects. The primary sources of this information were: 1) ACL subscales on depression, anger, negative self-image, vulnerability, relaxation, positive self-image, involvement-active participation, and mastery, and 2) individual questions to assess the degree of shyness or embarrassment the subject felt while she was being examined, the amount of pain experienced during the exam, and a general assessment of how difficult pelvic exams were.

ACL Subscales.

Table 31 shows the mean number of items on each ACL subscale endorsed by subjects. The highest mean proportion of endorsed items were on scales measuring involvement-active participation (38%), relaxation (29%), mastery (28%) and vulnerability (28%). Subjects' perceptions of their last pelvic examination did not, for the most part, differ as a function of whether they were reporting on an exam that took place that day or one which took place earlier. The only exception was on how much involvement and participation subjects felt; subjects giving retrospective reports reported feeling significantly less involvement than subjects who just had a

pelvic exam (t= -2.33, df= 81, p<.05). On other ACL subscales there were no differences between these groups.

TABLE 31

Number of Items Endorsed on ACL Subscales

ACL SUBSCALE	Number of Items on Scale	Mean Number of Items Endorsed	s.d.
ANXIETY	12	3.5	3.4
DEPRESSIVE AFFECT	7	1.3	1.6
VULNERABILITY	8	2.3	2.2
NEGATIVE SELF-IMAGE	4	.3	.8
ANGER	6	1.0	1.6
RELAXATION	10	3.1	2.7
POSITIVE SELF-IMAGE	7	1.3	1.6
MASTERY	6	1.7	1.9
INVOLVEMENT	8	3.1	2.0

Subjects reports of anxiety during the pelvic examination (SUBANX) were highly correlated with reports of other negative feelings in subjects who had a pelvic exam the day of the study, including anger (r= .53, df= 43, p= .000), vulnerability (r= .48, df= 43, p= .000), depressive affect (r= .33, df= 43, p= .012), and negative self-image (r= .27, df = 43, p= .034). Anxiety was not correlated with reports of relaxation (r= .03, df= 43, p= .42), involvement (r= .08, df= 43, p= .29), feelings of

mastery (r= .05, df= 43, p= .37), or positive self-image (r= .11, df= 43, p= .23). Post-examination anxiety in subjects who had a pelvic exam was correlated with reports of depressive affect (r= .43, df= 42, p= .002). There was a trend for subjects with high post-exam anxiety to also report having negative feelings about themselves (r= .24, df= 42, p= .061).

Embarrassment During the Pelvic Examination.

Over half (58.8%) of the subjects reported feeling at least some degree of embarrassment while being examined (Table 32).

TABLE 32

Reports of Embarrassment During the Pelvic Exam

Degree of Embarrassment	Number of Subjects	Percent of Subjects
Extremely embarrassed	7	8.2
Very embarrassed	2	2.4
Fairly embarrassed	15	17.6
A little embarrassed	26	30.6
Not at all embarrassed	35	41.2

The degree of embarrassment subjects reported feeling was positively correlated with reports of feeling vulnerable

during the examination (r= .47, df= 82, p< .001). Given the high correlation between these items, the 8-item ACL scale and the single item measuring embarrassment were summed to form a single measure of vulnerability (Chronbach's alpha= .82). Among the entire pelvic sample, this combined measure of vulnerability was highly correlated with reports of anxiety during the pelvic examination (r= .70, df= 82, p< .001), pelvic concerns in general (r= .39, df= 82, p< .001), and concerns about being embarrassed (r= .40, df= 82, p< .001). Subjects who had a pelvic exam and reported feeling anxious during the exam were also likely to report feeling vulnerable (r= .59, df= 42, p< .001).

Reports of Pain During the Pelvic Examination.

As shown in Table 33, subjects generally reported that they experienced some pain in relation to the pelvic examination (74.1% reported at least a little pain). Subjects who were concerned that the examination would hurt reported more pain during the exam than those who showed less concern about pain (r= .31, df= 82, p= .002). This was also true for subjects who had a pelvic examination the day of the study (r= .28, df= 43, p= .030). Among subjects who expected and had a pelvic exam, high levels of pre-examination anxiety were not associated with reports of more pain during the examination (r= .26,

TABLE 33

Reports of Pain During the Pelvic Exam

Degree of Pain	Number of Subjects	Percent of Subjects
Great deal of pain	8	9.4
A lot of pain	7	8.2
A fair amount of pain	12	14.1
A little pain	36	42.4
No pain	22	25.9

df= 33, p= .065). In subjects who had an exam, anxiety during the examination was associated with reports of greater pain (r= .45, df= 43, p< .001).

Subjects' Reports on the Good and Bad Things About Their Last Pelvic Exam.

Tables 34 and 35 show the aspects of the pelvic examination that subjects identified as "good things" and "bad things". In terms of positive aspects of pelvic examinations, 20.2% of the subjects said that nothing was good about their last examination. The most frequently mentioned positive aspect of the pelvic examination was its potential health benefit (37.7% of responses). Attributes of the health care provider and specifics pertaining to the examination were the next most frequently mentioned positive aspects of the pelvic examination (13.1%

each). Among subjects who mentioned specifics of the examination, 53% said the examination was good because it was over quickly.

The most frequently reported negative aspect of the pelvic examination was that it was painful (30.6%). Other frequently mentioned negative aspects were that they were "uncomfortable" (15.3%), or that they were embarrassing (8.2%) or frightening (7.1%). Almost twenty percent (19.4%) of the subjects said that nothing was bad about their last examination.

TABLE 34

Good Things Subjects Reported About Their Last Pelvic Exam

Positive Aspects of Last Exam	Number of Subjects *	Percentage of Codeable Responses
Knowledge about health	37	37.7
Psychological state of subject	8	8.1
Provider attributes	13	13.1
Examination attributes	13	13.1
Instrumental benefit	3	3.0
Other	5	5.1
Nothing was good	20	20.2

* Responses do not sum to number of subjects since subjects gave multiple responses.

TABLE 35

Bad Things Subjects Reported About Their Last Pelvic Exam

Megative Aspects of Last Exam	Number of Subjects*	Percentage of Codeable Responses
Exam was painful	30	30.6
Was anxious	7	7.1
Was self-conscious	8	8.2
Discomfort	15	15.3
Provider attributes	5	5.1
Discovered pathology	2	2.9
Speculum	5	5.1
Other	4	4.1
Everything was bad	4	4.1
Nothing was bad	18	19.4

* Responses do not sum to number of subjects since subjects gave multiple responses.

Difficulty Of Pelvic Exams.

Pelvic examinations were generally seen as more difficult than "other medical procedures" (Table 36). Sixty percent of the subjects rated pelvic examinations as more difficult than other procedures, 38.8% said the exam was less difficult, and 1.2% said it was about the same as other medical procedures.

Among subjects who expected and had a pelvic examination the day of the study, those who had high pre-examination anxiety rated the exam as more difficult for them

TABLE 36

Reports of the Difficulty of Pelvic Exams

Degree of Difficulty	Number of Subjects	Percent of Subjects
Much more than other procedures	18	21.2
Somewhat more	12	14.1
A little more	21	24.7
About the same	1	1.2
A little less	11	12.9
Somewhat less	8	9.4
Much less	14	16.5

than did subjects with low pre-examination anxiety ($r = .34$, $df = 33$, $p = .024$). In the entire pelvic sample, subjects who rated the examination as more difficult for them were also likely to report having concerns about self-consciousness ($r = .29$, $df = 82$, $p = .004$) and aversive consequenses of pelvic exams ($r = .38$, $df = 80$, $p < .001$), and to report being anxious during the examination ($r = .35$, $df = 83$, $p < .001$). Other affective responses to the exam which were associated with difficulty were: anger ($r = .26$, $df = 82$, $p = .007$), vulnerability ($r = .38$, $df = 83$, $p < .001$), not feeling relaxed ($r = -.35$, $df = 82$, $p = .001$), not feeling involved ($r = -.19$, $df = 82$, $p = .039$), and not having positive feelings about themselves ($r = -.22$, $df =$

82, p= .020). In subjects who had a pelvic exam the day of the study, post-exam anxiety was not associated with reports of having difficulty with pelvic examinations in general (r= .04, df= 42, p= .411).

Information Subjects Will Convey to Friends.

As shown in Table 37, most of the information subjects said they would convey to friends about pelvic examinations was positive. Subjects who reported experiencing anxiety during the pelvic examination were less likely to mention positive aspects of the examination to friends (r= -.21, df= 83, p= .030) and were somewhat more likely to report negative information (r= .16, df= 83, p= .066). In subjects who had a pelvic exam the day of the study, those with high post-examination anxiety were less likely to mention positive aspects of the examination to friends (r= -.36, df= 42, p= .008), but were not more likely to report negative aspects (r= .-09. df= 42, p= .282).

TABLE 37

Information Subjects Plan to Tell Friends About Pelvic Examinations

Type of Information	Number of Subjects	Percent of Subjects
Description of procedure	23	27.1
Importance of procedure	22	25.9
Exams are painful	14	16.5
Exams are not painful	22	25.9
Exams are physically uncomfortable	9	10.6
Description of other physical sensations	8	9.4
Self-consciousness	4	4.7
Should not be self-conscious	2	2.4
Exams provoke fear/anxiety	1	1.2
Should not be fearful	24	28.2
Sexual issues	1	1.2
Other positive information	11	12.9
Other negative information	2	2.4

The Effect of Mode of Administration on Reporting in Relation to Pelvic Examinations

Although different modes of administering questions (face-to-face interview, questionnaire, computer interview) yielded similar results when subjects were asked about their physical symptomatology, sexual behavior and drug use, there were some differences between conditions on reporting in reference to the pelvic examination.

Reporting of Anxiety and Concerns About Pelvic Examinations by Condition

Mode of administration was not associated with differences in reports of anxiety during the pelvic exam ($R = .05$, $df = 2,82$, $p = .89$), or post-examination anxiety ($R = .11$, $df = 2,42$, $p = .77$). There were, however, significant differences in the reporting of concerns about pelvic examinations and affective responses other than anxiety among subjects in the three conditions.

Analysis of variance of concerns about self-consciousness showed a trend for condition ($F = 2.82$, $df = 2,81$, $p = .065$). A priori contrasts between self-administered forms and face-to-face interviews showed that subjects who completed self-administered forms (questionnaires or computer interviews) were more likely to acknowledge having concerns about self-consciousness than were subjects interviewed in the face-to-face condition ($t = -2.17$, $p =$

.024). Differences in the reporting of self-consciousness between subjects in the questionnaire and computer interview condition were not significant (t= -1.06, p= .29). Subjects did not differ significantly in the reporting of concerns about the aversive consequences of pelvic exams (F= 1.55, df= 2,79, p= .22).

Among subjects who had a pelvic examination the day of the study, the relationship of concerns about pelvic exams to anxiety during the examination also differed by condition (F= 4.25, df= 4,35, p= .007). Examination of partial coefficients showed a significant effect for the interaction of concerns pertaining to the aversive consequences of pelvic exams and mode of administration (sr2= .28, df= 1,35, p<.001). There was little relationship between concerns about aversive consequences of pelvic examinations and reported anxiety during the exam among subjects interviewed in the face-to-face condition (r= -.18). In contrast, subjects who were given questionnaires or computer interviews showed strong positive relationships between these concerns and anxiety (r= .71 and r= .89, respectively).

In subjects who reported on previous pelvic examinations, there was no similar interaction (F= .90, df= 4,29, p= .48).

Reporting of Other Affective Responses To the Pelvic Examination by Condition

As shown in Table 38, subjects in the three conditions differed on their reporting of other affective responses to the pelvic examination. These differences primarily emerged on ACL subscales representing "positive" responses to the pelvic exam ($F= 10.60$, $df= 2,81$, $p<.001$). The mean number of positive adjectives endorsed by subjects in the face-to-face interview, questionnaire, and computer interview conditions were 8.1, 9.4 and 18.1, respectively. Specific scales on which subjects differed were: feelings of relaxation ($F= 6.39$, $df= 2,81$, $p= .002$), positive self-image ($F= 9.89$, $df= 2,81$, $p<.001$), mastery ($F= 11.81$, $df= 2,81$, $p<.001$), and involvement ($F= 6.26$, $df= 2,81$, $p= .003$). On all of these scales, subjects in the face-to-face interview condition were less likely to acknowledge having positive feelings than were subjects who completed self-administered forms. Subjects who completed questionnaires were also less likely to report having these feelings than were subjects in the computer interview condition. On "negative" ACL subscales, there was a trend for similar differences on the negative self-image and vulnerability subscales; subjects in the face-to-face condition were less likely to report having these negative feelings than subjects in other groups.

TABLE 38

Mean Proportion of Endorsed Items on ACL Subscales by Mode of Administration

ACL SUBSCALE	CONDITION: Face-to-face Interview	Questionnaire	Computer Interview
Relaxation	.21 ++	.26 *	.46
Positive Self-Image	.10 **	.13 **	.33
Mastery	.12 ***	.21 **	.48
Involvement	.29 ++	.34 **	.51
Depressive Affect	.14	.17	.23
Negative Self-Image	.02 ++	.06	.14
Vulnerability	2.3 +	3.2 ++	4.1
Anger	.15	.12	.24

\+ p <.10
++ p <.05
* p <.01
** p <.005
*** p <.001

Values in the Face-to-Face Interview column denoted with * or + reflect differences between the face-to-face interview condition and other conditions. Values marked in the Questionnaire column reflect differences between the questionnaire and computer interview conditions.

DISCUSSION

Anxiety and the Pelvic Examination

In addition to examining response bias as a function of mode of administration, the current study was also designed as an exploratory examination of the role of anxiety in relation to pelvic examinations.

It was hypothesized that anxiety about pelvic examinations in adolescents would be associated with their age, history of previous pelvic exams, their ethnic background, and the sex of the provider who performed the examination. None of these factors were related to differences in anxiety among subjects in the sample. It is possible that the interactive effects of these variables, rather than their simple main effects, provide the most adequate means of assessing their effects. Unfortunately, it was not possible to test for these interactions in the current study, since cell sizes were rarely large enough to make meaningful assessments. Larger samples which could examine the interactive effects of these factors would be a better test of these hypotheses.

Exploratory analyses yielded a number of interesting findings which should be replicated in subsequent studies on this topic. The results of the study suggest that

while adolescent females in the sample did not exhibit pathological absolute levels of anxiety in relation to pelvic examinations, approximately one-third (32.6%) of the subjects who expected to have a pelvic examination had state anxiety levels which were at or above the levels associated with pre-operative anxiety (Chapman & Cox, 1976), test anxiety (Spielberger, et. al., 1970), and anxiety associated with public speaking (Spielberger, et. al., 1970). While comparison of adolescents' anxiety with reported norms under stressful conditions does provide a means of assessing how anxious subjects were, it does not provide information about whether the anxiety levels were high enough to have other adverse effects. Perhaps the major issue of importance in relation to adolescents' anxiety about pelvic examinations is whether the anxiety is sufficiently intense to affect other parameters of psychological distress, their physiological reaction to the examination, and their compliance with recommendations for future pelvic exams.

Anxiety in this sample of adolescents was associated with a variety of other negative states as well, including feelings of anger, vulnerability, depression and negative feelings about themselves. While it was thought that the major variable of interest in examining negative reactions to pelvic examinations would be anxiety, the

results suggest that negative responses to pelvic examinations do not focus solely on anxiety, but rather include an entire set of negative affective responses. Thus, anxiety may represent only part of a general negative orientation to pelvic examinations. Future studies on adolescents' affective responses to pelvic examinations should consider examining these other factors, such as vulnerability and self-image, and whether they reflect a general negative orientation or whether they represent separate dimensions. If these factors do represent a single dimension, the relationship between subjects' concerns about pelvic examinations and their anxiety about the procedure could reflect this general negative orientation rather than suggesting a causal relationship between concerns and anxiety.

Fear that the pelvic examination may be painful may be the most important concern to alleviate in adolescent patients. The higher the adolescent's level of concern about pain, the more likely she was to show high levels of anxiety prior to, during, and following the pelvic examination. Fear of pain may be a self-fulfilling prophecy; subjects who were most concerned that the pelvic exam would hurt were also most likely to report feeling pain during the pelvic examination ($r = .31$). While it can be argued that subjects fear of pain is the result of having

had painful examinations, the data suggest that fear of pain may, in some cases, be the causal determining factor. Subjects who had their first pelvic examination the day of the study reported significantly higher levels of concern about pain than subjects who had a history of previous examinations ($p = < .005$), and their concerns were highly associated with reports of pain during the examination ($r = .53$). A number of different mechanisms have been postulated to for the influence of state anxiety on pain, and the possibility that a causal link between the two exists is still considered a plausible one (Schalling, 1976).

Anxiety in patients undergoing pelvic examinations has been viewed as affecting patients willingness to undergo subsequent examinations (Kruetner, 1978; Wells, 1977). The results of the current investigation cannot directly answer that question, since data on subsequent compliance were not collected. However, research in adults has shown patients who perceive a procedure or therapy as painful are less likely to comply with medical recommendations than patients who do not perceive the treatment as painful (Kegeles, 1966; Radelfinger, 1965). Concerns that the pelvic examination would be painful were present in a majority of the adolescents surveyed in this study. These concerns, as well as perceptions of the pelvic ex-

amination as painful, could thus have an impact on subsequent compliance. Furthermore, it is important to note that the sample in the current study was limited to those adolescents who had actually had pelvic examinations. Non-compliant adolescents, who might avoid having pelvic exams, were probably undersampled and would be likely to show higher levels of anxiety about the procedure than would adolescents in the current sample.

Although anxiety is generally viewed in terms of its debilitating potential, it also has the potential to facilitate positive outcomes. Anxiety may an important role in motivating people to seek health care in the absence of symptoms. Individuals who have some degree of concern about the possibility of contracting a particular disease, have been shown to be more likely to seek preventive health care than those who do not perceive themselves as susceptible (Rosenstock, 1974). In this regard, adolescents fears that the pelvic examination may uncover pathology may be viewed in positive terms.

It does seem reasonable, however, to view adolescents' concerns about pain differently than their fears of pathology. It seems unreasonable to suggest that fears of pain serve any positive function.

In terms of subsequent compliance, the issue may utimately be whether anxiety generated by a given procedure

is greater or less than the anxiety associated with feelings of susceptibility and a lack of preventive action. Clearly, the current study cannot answer that question.

While the results of the study do not definitively point to anxiety as a precursor of other negative affective states or differences in subjective physiological states, they do offer enough evidence to suggest that a reduction in adolescent's anxiety about pelvic examinations may serve to make the experience a less unpleasant one.

This may be particularly true in terms of adolescents' fears of pain. The most common specific message these adolescents heard from their peers was that pelvic examinations were painful, and peers were the most frequently mentioned information source. While health care providers were an important information source for these young women, their messages rarely focused on sensory decriptions of the procedure. Research on anxiety in relation to stressful or aversive medical procedures has shown that providing patients with information about the sensory feelings they will experience can decrease their level of anxiety about the procedure (Fuller, et. al., 1978). In the adolescent patient having a pelvic exam, particularly those who have had few pelvic exams, discussing the physical sensations associated with the procedure may

help to alleviate some of the adolesent's anxiety about pelvic exams, and potentially decrease their reluctance about having them.

The Effect of Mode of Administration on Response Bias

The literature on response bias suggests that problems of self-presentation may affect individuals when they are asked questions which tap social norms. It has been argued that revealing information about oneself which conflicts with social norms represents a potential threat to self-esteem which, in turn, results in anxiety. Response bias, in the form of overreporting socially desirable attributes and underreporting socially undesirable attributes, may be the direct result of this anxiety. Underlying this argument then, are the following assumptions:

1. Admitting that one possesses socially undesirable attributes may yield disapproval from others.
2. A sense of self-esteem is dependent, in part, on the perceptions of others; disapproval from others may lower ones own sense of self-esteem.
3. Threats to self-esteem are anxiety-producing.

Given these assumptions, impression management theorists have argued that individuals who are anxious about threats to their self-esteem will present themselves as possessing socially desirable attributes in an attempt to maintain their self-esteem and reduce their anxiety.

Anxiety and Response Bias

The results of the current study lended minimal support to the hypothesized relationship between anxiety and response bias. Higher state anxiety among adolescent females in the current sample was associated with the reporting of significantly less involvement in a variety of sexual behaviors. However, in the case of reporting of embarrassing, non-gynecological symptomatology and satisfaction with the clinic visit, results were in the opposite direction. Greater anxiety among subjects was associated with the reporting of a greater number of embarrassing symptoms and less satisfaction with the clinic visit. If it is true that anxiety leads to response bias, one would expect high anxiety to be associated with reports of fewer embarrassing symptoms and greater satisfaction with the clinic visit, since these appear to be the socially desirable responses. In addition, one would expect anxiety to be associated with the reporting of less involvement with drug usage, yet no such differences emerged.

Before concluding that anxiety is not associated with response bias, a number of issues must be raised. The first deals with the question of whether items selected to produce anxiety were in fact threatening enough to do so. The second issue pertains to the measurement of anx-

iety in the current study and its ability to reflect differences in anxiety among subjects in the sample.

In terms of tne threat of the questions, it is possible that only on questions pertaining to sexual behavior were threats to self-esteem sufficiently intense to provoke anxiety and response bias. The current investigation cannot offer direct support of this hypothesis since anxiety was measured at the conclusion of the study, after subjects had responded to the entire set of potentially threatening questions. However, there are some indications that questions pertaining to sexual behavior may have been associated with greater anxiety among subjects. Subjects in the current study were asked which questions, if any, they found embarrassing to answer. Although only 29% of the sample reported that they were embarrassed to answer certain questions, the types of questions mentioned were consistently in the sexual behavior realm.

An additional source of information on the anxiety-producing potential of specific questions are the social desirability ratings on such items. A separate sample of female adolescents rated the desirability of telling an adult that she engaged in sexual activities or drug use, or had experienced specific symptoms. Acknowledgement of sexual activities and drug use was rated as highly unde-

sirable. Questions pertaining to "embarrassing" symptomatology were not rated as being undesirable among this independent sample. Given this, it is not surprising that anxiety levels were not associated with differences in the reporting of such symptoms.

However, if social desirability ratings are an accurate representation of the anxiety generated by such questions, the lack of a relationship between anxiety and the reporting of drug use is problematic. Acknowledgment of drug use to an adult was viewed as being just as undesirable as engaging in sexual activities. Yet there were no differences in responses to questions about drug use as a function of the adolescents anxiety level. The question of whether social desirability ratings accurately reflect the threat of such questions cannot be directly assessed. In support of this argument, however, the correlation between ratings of social desirability and actual rates of acknowledgement of specific attributes was -.38 ($p < .05$). The more undesirable an item was judged, the less likely it was to be endorsed by a separate sample of youth. This finding is consistent with those reported by Colombotos (1969). If ratings of social desirability are an accurate way of assessing the potential threat of a given question, then the results of this study suggest that anxiety is not always associated with response bias.

In terms of the measurement of anxiety, is the issue of whether anxiety generated by threatening questions is relatively stable or is transient in nature. If the anxiety remains relatively stable, then the measurement of anxiety at the conclusion of the study should have detected any differences in anxiety among subjects. Originally, it was thought that increases in anxiety generated by threatening questions would remain relatively stable throughout the study procedure. However, if anxiety generated by threatening questions is transitory, a number of interesting implications emerge.

First, the measurement of anxiety was made at the conclusion of the study which may have been temporally too distant from subjects' experience of anxiety. The survey questions which were expected to be the most threatening to subjects (e.g., sexual behavior and drug use) were asked approximately half-way through the study. As such, anxiety generated by these questions might dissipate by the conclusion of the study. This would appear to be a reasonable possibility, since state anxiety is known to fluctuate significantly as perceived stressors are introduced and withdrawn (Spielberger, 1970).

Furthermore, even if these questions had been asked later in the survey, it is possible that the experience of being asked multiple questions of a threatening nature

would eventually cease being anxiety-producing. If threatening questions are no longer anxiety-producing and state anxiety is transitory, a return to baseline levels of anxiety by the conclusion of the study would be expected.

A more important issue, which has not been raised in the literature on response bias, is whether anxiety generated by threatening questions actually dissipates as a function of response bias. In otherwords, when subjects respond in socially desirable directions to reduce their anxiety, do these attempts at anxiety-reduction actually succeed? If response bias, in the form of giving socially desirable information about oneself, is a successful way to reduce anxiety, then subjects who engage in this impression management strategy might not be expected to show higher levels of anxiety following this strategy.

The current investigation cannot resolve the issue of whether state anxiety varies as a function of asking subjects specific questions, or whether anxiety dissipates as a function of responding in socially desirable directions. What does seem clear, however, is that there are multiple indications to suggest that the measurement of anxiety at the conclusion of the study may have been an inadequate test of the hypothesized relationship between anxiety and response bias. In fact, if presenting one-

self in socially desirable does represent a successful anxiety-reduction strategy, then one would not expect a relationship to emerge between response bias and anxiety measured at a later point in time. Future investigations examining the relationship between response bais and anxiety might be successful collecting repeated measurements of anxiety, such as with continuous physiological monitoring.

Mode of Administration

It was hypothesized that situations which increase the salience of social norms may function to intensify the process thought to underly the phenomena of response bias. Face-to-face interviewing situations have been viewed in such a manner due to the presence of another person. Given this, in sensitive topic areas, one would expect that in face-to-face situations, the presence of the interviewer would serve to reinforce those social norms and generate more socially desirable responses. On self-administered forms, one would expect social norms to exert less influence and result in a greater willingness to acknowledge socially undesirable attributes. The current investigation tested the hypotheses that subjects who completed self-administered questionnaires or who were interviewed by a computer would less anxious and be

more willing to acknowledge undesirable attributes than would subjects who were interviewed in the face-to-face manner.

The results of the study did not support these hypotheses. There were no significant differences in anxiety as a function of mode of administration. While it can be argued that the sample size was not large enough to detect small differences between the groups, such differences would probably be of little clinical significance. Furthermore, if anxiety is the mediating factor in response bias, small differences in anxiety would be unlikely to generate response bias differences. Some of the issues raised in the previous section about the measurement of anxiety at the conclusion of the study are important when examining the lack of a relationship between anxiety and mode of administration. Just as threatening questions might loose their anxiety-producing potential over time, so might the hypothesized anxiety-reducing aspects of self-administered forms be reduced over the course of a long survey.

It was also hypothesized that face-to-face interviews would yield greater response bias than self-administered forms. This hypothesis was not supported.

Differences in responses to sensitive questions as a function of mode of administration accounted for only 0%

to 3% of the variance in response. When the study was designed, it was decided that differences at the level of 5% of the total response variance, while small, were of clinical significance. Given this, the study was designed to have reasonable statistical power (.80) to detect differences at that level if they existed. Due to problems in procuring subjects, the study realistically had a power of .80 to detect differences of 7% of the total response variance. If differences in the 5% range do exist, the current study had a 66% chance of finding them, which is less then one would like. Clearly, this is a major issue to be addressed if one wishes to conclude that mode of administration is not associated with response bias. If however, the trends noted in the groups were reflective of the actual mean differences, the effect sizes are indeed small. Effect sizes in the 1% range, for example, cannot usually be perceived on the basis of casual observation (Cohen, 1977). Such an effect size would be of questionable clinical significance.

In terms of the sample used to examine response bias and mode of administration, it was thought that the model proposed for response bias would be especially applicable to adolescents. Adolescence represents a developmental stage during which time attention to social norms is thought to be heightened (Offer, 1969). Despite the im-

portance of the peer group and its norms, adolescents are acutely aware of the social norms of adults. In fact, adolescents' assessments of the desirability or undesirability of specific attributes does not differ from assessments made by adults (Crowne & Marlowe, 1964; Stiller, 1965). If attention to social norms are heightened during adolescence, and adolescents are dependent on the evaluations others have of them, then one would expect threats to self-esteem as a function of acknowledging undesirable attributes to be heightened during adolescence.

Despite the fact that mode of administration was not associated with responses to specific questions among this sample of adolescents, it is plausible that certain situational aspects of the study obscured actual differences which exist. In the clinical situation in which the study took place, adolescents are frequently asked to respond to questions about their sexual behavior, drug use and symptomatology. Such questions may thus be familiar, anticipated by patients, and viewed as being within the purview of the clinical experience. Situationally appppropriate questions which are familiar to subjects may not generate response bias.

This hypothesis has particular appeal when one examines the results of the pelvic study as a function of mode of administration. While questions designed to tap

social norms and pull for socially desirable responses generated no differences as a function of administration mode, differences did occur on questions about subjects' concerns about pelvic examinations and their affective responses to the examination. Concerns about self-consciousness were significantly more likely to be reported by subjects who completed self-administered forms (questionnaires or computer interviews. This difference accounted for approximately 6% of the variance in response ($p = .024$). Differences in affective response were also noted: Subjects who completed self-administered forms were more likely to report having positive feelings about pelvic exams, especially those subjects who were interviewed in the computer condition. Subjects completing self-administered forms reported feeling more relaxed during the exam, better about themselves, more involved in the exam, and to have feelings of mastery during the experience. It is of interest to note that while interviewers reported feeling that subjects were happy to talk about their experiences and welcomed the opportunity to do so, they in fact offered less information about themselves than did subjects who responsed to questions in private.

It is reasonable to speculate whether responses to questions about pelvic examinations can be viewed as hav-

ing socially desirable or undesirable components. There are indications that subjects' concerns about self-consciousness (personal cleanliness, odor and embarrassment) may be viewed as more personal or embarrassing to acknowledge than other types of concerns. Among subjects in the current sample, need for approval was associated with the reporting of fewer concerns about self-consciousness ($r=-.28$, $p<.01$). In terms of affective responses, subjects' willingness to acknowledge a greater proportion of positive affective states when completing self-administered forms, while appearing somewhat counter-intuitive, has been reported elsewhere. Henson (1977) reported significantly more "denial of positive affective states" among subjects interviewed in person versus those interviewed by telephone.

Although other investigations have compared responses to individual items as a function of mode of administration, no other study has been reported which examined relationships among items as a function of mode of administration. Ultimately, most researchers are interested in the interrelationships among a group of constructs or variables, not just individual constructs by themselves. Given this, the current study provides information concerning the effect of mode of administration on relationships among various attributes. In the pelvic study, the finding that subjects' concerns about potentially aver-

sive consequences (such as fear of pain or discovery of pathology) were asociated with their anxiety about the procedure, only emerged among subjects who completed self-administered forms. There was no relationship between subjects' concerns and their anxiety level among subjects interviewed in the face-to-face condition. This may be partially explained by the smaller variance in reported anxiety levels among subjects in this group. It may also reflect an unwillingness to share negative feelings with the interviewer, which would suggest that issues of self-presentation may have been generated as a function of the face-to-face interview.

Thus, had the study on pelvic examinations depended solely on the use of traditional interviews to gather data, the results would have been different in important ways.

The Importance of Mode of Administration

Given the results of the study, what can one conclude about the importance of mode of administration on response bias among adolescent females? The investigation began with the hypothesis that response bias was, in part, situationally determined. The specific situational factor manipulated in the present study was mode of administration. It was expected that individual differenc-

es, such as subject's need for approval, would be less highly associated with response bias than would a situational factor such as mode of administration. This expectation was not met; need for approval accounted for more of the variance in response bias than mode of administration. While administration mode was not associated with differences on items selected because of their potentially threatening aspects, other differences did emerge on questions about subjects' experience of pelvic exams. Questions on which differences in response bias were expected such as sexual and drug use behavior or symptomatology may be characterized in the clinical setting utilized as familiar, expected and appropriate. On the other hand, questions about pelvic examinations infrequently revolve around the adolescent's subjective, affective experience. This suggests that factors such as familiarity, expectation and appropriateness may be important components of the response bias phenomena.

When examining mean differences in reporting of socially undesirable attributes as a function of mode of administration, one is tempted to conclude that administration mode is not associated with reporting behavior. Differences in the range of 0% to 2% of the total response variance are small effects of limited clinical significance.

However, examination of the 95% confidence intervals surrounding the sample R2's suggest that while population effect sizes could account for as little as none of the response variance, the effect of mode of administration could also account for as much as 13% of the total variance in reporting behavior. An effect size of this magnitude (r= .36) would have unquestionable clinical significance.

Furthermore, when one examines reporting trends on individual items as a function of mode of administration, a different picture of the importance of administration mode emerges. Although mean differences in the reporting of sexual behavior were not significantly different as a function of mode of administration, on five of six specific behaviors(16) the percentage of subjects who said they had engaged in the behavior was lowest in the face-to-face interview condition. The probability of this occuring by chance is .11 (Sign test), which, while not at the traditional .05 level, is certainly suggestive. If one extends the sexual behavior realm to include associated phenomena,(17) ten of twelve items show the same trends: The percentage of subjects acknowledging undesi-

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(16) Kissing, petting above the waist, petting below the waist, masturbation, oral sex, sexual intercourse.

(17) e.g., vaginal infection, asking for birth control, tests for venereal disease, pregnancy, abortion.

rable attributes was lowest in the face-to-face interview condition. The probability of this occuring by chance is .02. On every item pertaining to drug use (6 items), the lowest rates of acknowledgement of drug use were among subjects interviewed in the face-to-face condition.

Given the limited statistical power of the study, and the direction of the trends which were found, mode of administration cannot be dismissed as an unimportant source of response variance. While the current investigation did not find unequivocal evidence to suggest that mode of administration had a large effect on response bias, it also did not provide substantial evidence to suggest that it is an unimportance source of variance. Indeed, the trends noted in the current study suggest that mode of administration may have a predictable effect on reporting behavior; the question is whether these effects are large enough to have clinical significance. In view of the different conclusions one could reach regarding adolescent's sources of anxiety about pelvic examinations, it appears that the effects of mode of administration are large enough to be of clinical significance.

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Appendix A

STATE-TRAIT ANXIETY INVENTORY - STATE A FORM

YOUNG WOMEN'S HEALTH SURVEY - UCSF

Self-Evaluation Questionnaire

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you FEEL right now, that is, AT THIS MOMENT. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer that seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and rattled	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④

Appendix B

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE

PERSONAL ATTITUDES QUESTIONNAIRE

DIRECTIONS: Listed below are several statements concerning personal attitudes and traits. Read each item and decide whether the statement is more true or more false as it applies to you personally. Circle the T if the statement is more true then false of you personally, and circle the F if the statement is more false than true of you personally. Be sure to answer every item.

TRUE	FALSE		
T	F	1.	I never hesitate to go out of my way to help someone in trouble.
T	F	2.	It is sometimes hard for me to go on with my work if I am not encouraged.
T	F	3.	I have never intensely disliked anyone.
T	F	4.	At times I have had doubts about my ability to succeed in life.
T	F	5.	I sometimes feel resentful when I don't get my way.
T	F	6.	I am always careful about how I dress.
T	F	7.	My table manners at home are as good as when I eat out in a restaurant.
T	F	8.	If I could get into a movie without paying and be sure I was not seen, I would probably do it.
T	F	9.	On a few occasions, I have given up doing something because I thought too little of my ability.
T	F	10.	I like to gossip at times.
T	F	11.	There have been times when I felt like rebelling against people in authority even though I knew they were right.
T	F	12.	No matter who I'm talking to, I'm always a good listener.
T	F	13.	I can remember "playing sick" to get out of something.
T	F	14.	There have been times when I took advantage of someone.
T	F	15.	I'm always willing to admit it when I make a mistake.
T	F	16.	I always try to practice what I preach.
T	F	17.	I don't find it particularly difficult to get along with loud-mouthed, obnoxious people.
T	F	18.	I sometimes try to get even rather than forgive and forget.

Turn to the next page.....

TRUE	FALSE		
T	F	19.	When I don't know something I don't at all mind admitting it.
T	F	20.	I am always courteous, even to people who are disagreeable.
T	F	21.	At times I have really insisted of having things my own way.
T	F	22.	There have been times when I felt like smashing things.
T	F	23.	I would never think of letting someone else be punished for my wrong-doings.
T	F	24.	I never resent being asked to return a favor.
T	F	25.	I have never been irked when people expressed ideas very different from my own.
T	F	26.	There have been times when I was quite jealous of the good fortune of others.
T	F	27.	I have almost never felt the urge to tell someone off.
T	F	28.	I am sometimes irritated by people who ask favors of me.
T	F	29.	I have never felt that I was punished without cause.
T	F	30.	I sometimes think when people have a misfortune they only get what they deserved.
T	F	31.	I have never deliberately said something that hurt someone's feelings.

Appendix C

SOCIODEMOGRAPHIC INVENTORY

SOCIODEMOGRAPHIC INTERVIEW SHEET

Age:_____ School: _____

Date of Birth:_____

In terms of your religion, which of the following best describes you?

1.___very religious 2.___somewhat relisious
3.___not very religious 4.___not at all religious

What is your religious background?

1.___Prot. 2.___Cath. 3.___Jewish 4._____

What is your race or nationality?

1.___Cauc. 2.___Black 3.___Hisp. 4.___Asian 5._____

Do you live with both your father and mother?

Father or _____Education.

1.___less than 7th grade
2.___junior high school
3.___some HS
4.___HS graduate
5.___some college
6.___college graduate
7.___graduate/professional training

Father's occupation:_____

Mother or _____Education.

1.___less than 7th grade
2.___junior high school
3.___some HS
4.___HS graduate
5.___some college
6.___college graduate
7.___graduate/professional training

Mother's occupation:_____

Appendix D

ADOLESCENT HEALTH SURVEY

YOUNG WOMEN'S HEALTH SURVEY

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

The Teen Clinic is taking a survey of young women who use this clinic. The survey asks questions about your health, how you feel about the health care you have received, and the things you do for your health. The survey asks a lot of questions, but we hope that you will not find it too long! If you want to stop for a while and rest, please do so.

The survey is confidential. Do not write your name on the survey. Please try to complete the survey and answer each question as honestly as you can. If you do not understand a question, please circle it.

Thank you!

Please turn the page and begin

PLEASE ANSWER THE FOLLOWING QUESTIONS BY PUTTING A CHECK (✓) IN THE BOX WHICH DESCRIBES YOU THE BEST.

1. In general, how would you describe the state of your health?

   ☐ excellent
   ☐ good
   ☐ fair
   ☐ poor

2. Have you been sick at all during the last year? (For example, sick enough to stay home from school?)

   ☐ no
   ☐ yes

3. In the past year, how many times have you seen a doctor about your health?

   ☐ not at all
   ☐ once
   ☐ 2 to 3 times
   ☐ 4 to 6 times
   ☐ more than 6 times

4. In the past year, how many times have you gone to see a dentist?

   ☐ not at all
   ☐ once
   ☐ 2 to 3 times
   ☐ more than 3 times

HERE ARE SOME SPECIFIC QUESTIONS ABOUT YOUR HEALTH. PLEASE ANSWER EACH QUESTION BY CHECKING (✓) YES OR NO. IF YOU ARE NOT SURE OF THE ANSWER, CHECK "DON'T KNOW".

		YES	NO	DON'T KNOW
5.	Do you get frequent colds?	( )	( )	( )
6.	Do you often get a sore throat?	( )	( )	( )
7.	Do you get frequent headaches?	( )	( )	( )
8.	Do you sleep well at night?	( )	( )	( )
9.	Do you get tired easily?	( )	( )	( )
10.	Is your appetite good?	( )	( )	( )
11.	Do you get stomach aches often?	( )	( )	( )
12.	Do you often have trouble with constipation?	( )	( )	( )
13.	Do you frequently feel sick to your stomach?	( )	( )	( )
14.	Do you ever get dizzy spells?	( )	( )	( )
15.	Do you have any allergies?	( )	( )	( )
16.	Do you often get diarrhea?	( )	( )	( )
17.	Have you ever had asthma or hay fever?	( )	( )	( )
18.	Have you ever had any broken bones?	( )	( )	( )
19.	Have you ever had a seizure (convulsion, fit)?	( )	( )	( )
20.	Have you ever had appendicitis?	( )	( )	( )

PLEASE TURN TO THE NEXT PAGE AND CONTINUE

HERE ARE SOME QUESTIONS ABOUT YOUR MENSTRUAL HISTORY (YOUR PERIODS). (If you have not started having periods, please turn to the next page).

21. How old were you when you had your first period? _____

22. When you have your periods, do you get cramps?

- ☐ no
- ☐ yes, mild cramps
- ☐ yes, moderate cramps
- ☐ yes, severe cramps

23. In between your periods, do you ever have a discharge from your vagina? (A wetness on your panties that isn't blood)?

- ☐ yes
- ☐ no
- ☐ don't know

24. Have you ever had any kind of infection in your vagina or other female parts (For example, vaginitis, yeast, trich, G.C)?

- ☐ yes
- ☐ no
- ☐ don't know

HAVE YOU EVER GONE TO SEE A DOCTOR FOR ANY OF THE FOLLOWING REASONS? PLEASE CHECK (✓) YES OR NO.

	YES	NO
periods were irregular	( )	( )
periods were painful	( )	( )
period was late	( )	( )
needed a PAP smear	( )	( )
missed a few periods	( )	( )
to get information about birth control methods	( )	( )
to get a birth control method	( )	( )
to get a pregnancy test	( )	( )
to get a test for venereal disease (VD)	( )	( )
to discuss sexual matters	( )	( )

PLEASE CONTINUE ON THE NEXT PAGE ---------->

HERE ARE SOME QUESTIONS ABOUT YOUR HABITS. PLEASE ANSWER EACH QUESTION BY CHECKING (✓) THE BOX WHICH DESCRIBES YOU THE BEST.

34. In general, how many hours do you sleep each night?

- ☐ less than 6 hours a night
- ☐ about 6 hours a night
- ☐ about 7 hours a night
- ☐ about 8 hours a night
- ☐ about 9 hours a night
- ☐ more than 9 hours a night

35. Do you smoke cigarettes?

- ☐ yes
- ☐ no

36. In general, how often do you brush your teeth?

- ☐ 3 times a day
- ☐ 2 times a day
- ☐ once a day
- ☐ every few days
- ☐ once a week
- ☐ less than once a week
- ☐ never

37. In general, how often do you take a bath or shower?

- ☐ every day
- ☐ every other day
- ☐ a few times a week
- ☐ once a week
- ☐ every few weeks

NOW PLEASE TURN TO THE NEXT PAGE

38. In general, how often do you drink beer or wine?

- ☐ almost every day
- ☐ a few times a week
- ☐ at least once a week
- ☐ a few times a month
- ☐ rarely (once a month or less)
- ☐ never

39. In general, how often do you drink hard liquor? (For example, rum or whiskey?)

- ☐ almost every day
- ☐ a few times a week
- ☐ at least once a week
- ☐ a few times a month
- ☐ rarely (once a month or less)
- ☐ never

40. How often do you smoke marijuana (pot, weed, grass)?

- ☐ almost every day
- ☐ a few times a week
- ☐ at least once a week
- ☐ a few times a month
- ☐ rarely (once a month or less)
- ☐ never

HAVE YOU EVER USED ANY OF THE FOLLOWING DRUGS, EVEN ONCE?

	YES	NO
PCP (Angel Dust)	( )	( )
LSD (Acid)	( )	( )
Amphetamines (Uppers, Speed)	( )	( )
Quaaludes (Sopors)	( )	( )
Barbiturates (Downers, Barbs)	( )	( )
Cocaine	( )	( )
Any other drugs (_____)	( )	( )

PLEASE CONTINUE ON THE NEXT PAGE ---------->

HERE ARE SOME QUESTIONS ABOUT YOUR SEXUAL ATTITUDES AND EXPERIENCE. SOME OF THE QUESTIONS ARE VERY PERSONAL, BUT IT IS IMPORTANT THAT YOU TRY TO ANSWER THEM AS HONESTLY AS YOU CAN. YOUR ANSWERS ARE CONFIDENTIAL AND NONE OF THE DOCTORS OR NURSES WILL KNOW WHAT YOU HAVE ANSWERED.

50. At what age do you think it's OK for a girl to begin having sexual intercourse?

_____

51. At what age do you think its OK for a boy to begin having s sexual intercourse?

_____

51. There is a wide range of normal sexual activity other than sexual intercourse such as touching, kissing, and so on. Please check (✓) all of those activities which you have experienced.

- ☐ holding hands
- ☐ hugging
- ☐ kissing
- ☐ touching and kissing, above the waist
- ☐ touching and kissing, below the waist
- ☐ masturbation (touching your sexual parts, playing with yourself)
- ☐ other (What? _____)

52. Have you ever had sexual intercourse?

- ☐ yes ----------> *if YES, please continue on the next page*
- ☐ no ----------> *if NO, please go to Page 7. Skip Page 6.*

PLEASE ANSWER THE FOLLOWING QUESTIONS IF YOU HAVE HAD SEXUAL INTERCOURSE.
IF YOU HAVE NOT HAD SEXUAL INTERCOURSE, PLEASE TURN TO PAGE 7. (the next page)

---

63. How old were you the first time you had sexual intercourse? _____

64. About how many times have you had sexual intercourse?

- ☐ once
- ☐ a few times
- ☐ more than a few times

65. How often do you have sexual intercourse?

- ☐ more than once a week
- ☐ about once a week
- ☐ a few times a month
- ☐ about once a month
- ☐ every few months or less

66. How many different sexual partners have you had since the first time you had intercourse? _____

67. When you have sexual intercourse, HOW OFTEN do you use birth control?

- ☐ every time I have sex
- ☐ almost every time I have sex
- ☐ about half of the time
- ☐ less than half of the time
- ☐ never

68. Did you ever think that you might be pregnant?

- ☐ yes
- ☐ no

69. Have you ever been pregnant?

- ☐ yes
- ☐ no

70. Have you ever had an abortion?

- ☐ yes
- ☐ no

NOW PLEASE TURN TO THE NEXT PAGE

HERE ARE SOME QUESTIONS ABOUT YOUR VISIT TO THE CLINIC TODAY.

71. Why did you come to the clinic today? If there was more than one reason, please list them all.

72. On todays visit, were you examined by a man or a woman?

- ☐ man
- ☐ woman

73. Was this the first time you saw this doctor?

- ☐ yes
- ☐ no, have seen this doctor once before
- ☐ no, have seen this doctor more than once

74. How long have you been a patient at this UC clinic?

- ☐ today was my first visit
- ☐ I have been coming here for a few weeks
- ☐ I have been coming here for a few months
- ☐ I have been coming here for a year or more

75. In terms of todays visit, how much did the doctor understand about your concerns or what was bothering you?

- ☐ a great deal
- ☐ a fair amount
- ☐ some
- ☐ a little
- ☐ nothing at all

76. How much interest did the doctor show in you?

- ☐ extremely interested
- ☐ very interested
- ☐ somewhat interested
- ☐ somewhat disinterested
- ☐ very disinterested
- ☐ extremely disinterested

77. In general, how satisfied were you with todays visit with the doctor?

- ☐ extremely satisfied
- ☐ very satisfied
- ☐ somewhat satisfied
- ☐ somewhat dissatisfied
- ☐ very dissatisfied
- ☐ extremely dissatisfied

78. If you needed to see someone about your health, would you want to come back to this clinic?

- ☐ yes, definitely
- ☐ yes, probably
- ☐ no, probably not
- ☐ no, definitely not

79. If you had a friend who needed to see a doctor, would you recommend this clinic?

- ☐ yes, definitely
- ☐ yes, probably
- ☐ no, probably not
- ☐ no, definitely not

PLEASE CONTINUE ON THE NEXT PAGE ---------->

HERE ARE SOME QUESTIONS ABOUT PELVIC EXAMINATIONS. (WHEN THE DOCTOR EXAMINES YOUR INTERNAL FEMALE PARTS)

80. Have you and your friends ever talked about pelvic exams or what they are like?

☐ no
☐ yes ----------> What have your friends said?

81. Has your mother ever told you anything about pelvic exams?

☐ no
☐ yes ----------> What has your mother told you?

82. Has anyone else ever talked to you about pelvic exams?

☐ no
☐ yes ----------> Who talked to you and what did they say?

83. Before you saw the doctor today, did you think that you might have a pelvic exam?

☐ I knew I would have one
☐ I thought I might have one
☐ I didn't know if I would or not
☐ I thought I wouldn't have one
☐ I knew I wouldn't have one
☐ I never thought about it

84. On todays visit, DID you have a pelvic exam?

☐ no
☐ yes ----------> *if YES, please turn to Page 12. Skip pages 9-11.*

85. Have you EVER had a pelvic exam?

☐ no ----------> *if NO, please turn to Page 15. Skip pages 9-14.*

☐ yes

if YES, please continue on the next page

86. About how many times have you had a pelvic exam?

- ☐ once
- ☐ 2 or 3 times
- ☐ 4 or 5 times
- ☐ more than 5 times

87. When was your last pelvic exam?

- ☐ 1-2 weeks ago
- ☐ about a month ago
- ☐ within the last six months
- ☐ within the last year
- ☐ more than a year ago

88. Try to remember your last pelvic exam. What were the good things about that exam? _____

_____

89. What were the bad things about that exam? _____

_____

Young women sometimes have concerns or worries about having a pelvic exam. Think about your last pelvic exam. Did you have any of the following thoughts or feelings? (Check the answer that is closest to how you felt)

	A GREAT DEAL	YES, SOME	A LITTLE	NOT AT ALL
Did you feel embarrassed about undressing for the examination?	( )	( )	( )	( )
Were you afraid the exam might hurt?	( )	( )	( )	( )
Did you worry that the doctor might find something wrong with you?	( )	( )	( )	( )
Did you wonder if the doctor could tell if you were a virgin?	( )	( )	( )	( )
Were you worried that you might have an odor that the doctor would notice?	( )	( )	( )	( )
Did you wonder if the doctor could tell about your sexual activities from examining you?	( )	( )	( )	( )
Were you concerned that the exam would damage your female organs?	( )	( )	( )	( )
Did you worry about whether you were clean enough for the exam?	( )	( )	( )	( )

PLEASE CONTINUE ON THE NEXT PAGE ---------->>

90. When you had your last pelvic exam, how much pain did you experience?

- ☐ no pain
- ☐ a little pain
- ☐ a fair amount of pain
- ☐ a lot of pain
- ☐ a great deal of pain

91. Did you feel nervous about the examination?

- ☐ not at all nervous
- ☐ a little nervous
- ☐ fairly nervous
- ☐ very nervous
- ☐ extremely nervous

92. Did you feel shy or embarrassed while you were being examined?

- ☐ not at all embarrassed
- ☐ a little embarrassed
- ☐ fairly embarrassed
- ☐ very embarrassed
- ☐ extremely embarrassed

93. In general, are pelvic examinations more or less difficult for you, compared with other medical exams?

- ☐ much more difficult
- ☐ somewhat more difficult
- ☐ a little more difficult
- ☐ a little less difficult
- ☐ somewhat less difficult
- ☐ much less difficult

94. How likely do you think it is that you will have another pelvic exam within the next year?

- ☐ definitely will have one
- ☐ very likely I will have one
- ☐ some chance I will have one
- ☐ very unlikely I will have one
- ☐ definitely will not have one

95. If a girlfriend asked you what pelvic exams were like, and she had never had a pelvic exam, what do you think you would tell her?

_____

_____

PLEASE TURN TO THE NEXT PAGE

Page 11

Listed below are a number of adjectives. Please read them quickly and put an X beside each one that describes how you felt during your last pelvic exam. There are no right or wrong answers. Try to work quickly and do not spend too much time on any one adjective. If you do not know what an adjective means, you should circle it. For example, the first adjective is "ACTIVE". If you felt active during your last pelvic exam, you should put a check (✓) next to it. If you did not feel active during your last pelvic exam, you should leave it blank. If you did not know what active meant, you should circle it.

1 __ active	26 __ dignified	51 __ jolly	76 __ ugly
2 __ alert	27 __ dirty	52 __ leisurely	77 __ unattractive
3 __ aloof	28 __ dissatisfied	53 __ mad	78 __ uncomfortable
4 __ angry	29 __ distrustful	54 __ nervous	79 __ undignified
5 __ annoyed	30 __ easy-going	55 __ optimistic	80 __ uneasy
6 __ anxious	31 __ embarrassed	56 __ passive	81 __ unemotional
7 __ appreciative	32 __ emotional	57 __ powerless	82 __ unfeminine
8 __ attractive	33 __ energetic	58 __ pretty	83 __ unsure
9 __ awkward	34 __ enthusiastic	59 __ reassured	84 __ upset
10 __ bored	35 __ excited	60 __ reflective	85 __ uptight
11 __ calm	36 __ exposed	61 __ relaxed	86 __ warm
12 __ capable	37 __ fearful	62 __ relieved	87 __ wholesome
13 __ clean	38 __ feminine	63 __ satisfied	88 __ withdrawn
14 __ cold	39 __ foolish	64 __ scared	89 __ worried
15 __ comfortable	40 __ frightened	65 __ secure	90 __ wound-up
16 __ comforted	41 __ glad	66 __ self-conscious	
17 __ confident	42 __ grown-up	67 __ sensitive	
18 __ confused	43 __ happy	68 __ sensual	
19 __ contented	44 __ healthy	69 __ sick	
20 __ cooperative	45 __ humorous	70 __ special	
21 __ courageous	46 __ ignored	71 __ strong	
22 __ curious	47 __ independent	72 __ talkative	
23 __ degraded	48 __ indifferent	73 __ tense	
24 __ dependent	49 __ interested	74 __ trusting	
25 __ depressed	50 __ irritated	75 __ vulnerable	

PLEASE SKIP TO PAGE 15

Page 12

Please answer these questions if YOU HAD A PELVIC EXAM TODAY.
If you DID NOT have a pelvic exam today, but have had them in the past please go back to Page 9.
If you HAVE NEVER had a pelvic exam, Please skip to Page 15.

96. Was today the first time you have had a pelvic exam?

☐ yes
☐ no ----------> Not counting today, how many times have you had a pelvic exam?
☐ once
☐ 2 or 3 times
☐ 4 or 5 times
☐ more than 5 times

97. Think about the pelvic exam you had today. What were the good things about that exam? _____

_____

98. What were the bad things about the exam? _____

_____

Young women sometimes have concerns or worries about having a pelvic exam. Think about your pelvic exam today. Did you have any of the following thoughts or feelings? (Check the answer that is closest to how you felt)

	A GREAT DEAL	YES, SOME	A LITTLE	NOT AT ALL
Did you feel embarrassed about undressing for the examination?	( )	( )	( )	( )
Were you afraid the exam might hurt?	( )	( )	( )	( )
Did you worry that the doctor might find something wrong with you?	( )	( )	( )	( )
Did you wonder if the doctor could tell if you were a virgin?	( )	( )	( )	( )
Were you worried that you might have an odor that the doctor would notice?	( )	( )	( )	( )
Did you wonder if the doctor could tell about your sexual activities from examining you?	( )	( )	( )	( )
Were you concerned that the exam would damage your female organs?	( )	( )	( )	( )
Did you worry about whether you were clean enough for the exam?	( )	( )	( )	( )

PLEASE CONTINUE ON THE NEXT PAGE ---------->

99. How much pain did you experience from the examination?

- ☐ no pain
- ☐ a little pain
- ☐ a fair amount of pain
- ☐ a lot of pain
- ☐ a great deal of pain

100. Did you feel nervous about the examination?

- ☐ not at all nervous
- ☐ a little nervous
- ☐ fairly nervous
- ☐ very nervous
- ☐ extremely nervous

101. Did you feel shy or embarrassed while you were being examined?

- ☐ not at all embarrassed
- ☐ a little embarrassed
- ☐ fairly embarrassed
- ☐ very embarrassed
- ☐ extremely embarrassed

102. In general, are pelvic examinations more or less difficult for you, compared with other medical exams?

- ☐ much more difficult
- ☐ somewhat more difficult
- ☐ a little more difficult
- ☐ a little less difficult
- ☐ somewhat less difficult
- ☐ much less difficult

103. How likely do you think it is that you will have another pelvic exam within the next year?

- ☐ definitely will have one
- ☐ very likely I will have one
- ☐ some chance I will have one
- ☐ very unlikely I will have one
- ☐ definitely will not have one

104. If a girlfriend asked you what pelvic exams were like, and she had never had a pelvic exam, what do you think you would tell her?

_____

_____

NOW PLEASE TURN TO THE NEXT PAGE

Page 14

Listed below are a number of adjectives. Please read them quickly and put an X beside each one that describes how you felt during today's pelvic exam. There are no right or wrong answers. Try to work quickly and do not spend too much time on any one adjective. If you do not know what an adjective means, you should circle it. For example, the first adjective is "ACTIVE". If you felt active during your last pelvic exam, you should put a check (✓) next to it. If you did not feel active during your last pelvic exam, you should leave it blank. If you did not know what active meant, you should circle it.

1 __ active
2 __ alert
3 __ aloof
4 __ angry
5 __ annoyed

6 __ anxious
7 __ appreciative
8 __ attractive
9 __ awkward
10 __ bored

11 __ calm
12 __ capable
13 __ clean
14 __ cold
15 __ comfortable

16 __ comforted
17 __ confident
18 __ confused
19 __ contented
20 __ cooperative

21 __ courageous
22 __ curious
23 __ degraded
24 __ dependent
25 __ depressed

26 __ dignified
27 __ dirty
28 __ dissatisfied
29 __ distrustful
30 __ easy-going

31 __ embarrassed
32 __ emotional
33 __ energetic
34 __ enthusiastic
35 __ excited

36 __ exposed
37 __ fearful
38 __ feminine
39 __ foolish
40 __ frightened

41 __ glad
42 __ grown-up
43 __ happy
44 __ healthy
45 __ humorous

46 __ ignored
47 __ independent
48 __ indifferent
49 __ interested
50 __ irritated

51 __ jolly
52 __ leisurely
53 __ mad
54 __ nervous
55 __ optimistic

56 __ passive
57 __ powerless
58 __ pretty
59 __ reassured
60 __ reflective

61 __ relaxed
62 __ relieved
63 __ satisfied
64 __ scared
65 __ secure

66 __ self-conscious
67 __ sensitive
68 __ sensual
69 __ sick
70 __ special

71 __ strong
72 __ talkative
73 __ tense
74 __ trusting
75 __ vulnerable

76 __ ugly
77 __ unattractive
78 __ uncomfortable
79 __ undignified
80 __ uneasy

81 __ unemotional
82 __ unfeminine
83 __ unsure
84 __ upset
85 __ uptight

86 __ warm
87 __ wholesome
88 __ withdrawn
89 __ worried
90 __ wound-up

PLEASE CONTINUE ON THE NEXT PAGE ---------->

BEFORE ENDING THIS PART OF OUR SURVEY, WE WOULD LIKE TO KNOW YOUR FEELINGS ABOUT THE QUESTIONS WE HAVE ASKED YOU.

105. Which of the following best describes your feelings about taking the survey?

- ☐ really liked the survey
- ☐ mostly liked the survey
- ☐ didn't like or dislike the survey
- ☐ mostly disliked the survey
- ☐ really disliked the survey

106. Imagine that you were to take this survey and you could choose how we asked you the questions. Which of the following ways would you choose?

- ☐ having a person ask you the questions in an interview
- ☐ having a computer ask you the questions and typing your answers into the computer
- ☐ filling out a questionnaire

Why would you choose this way? _____

_____

107. In general, how personal do you feel the questions were in this survey?

- ☐ extremely personal
- ☐ somewhat personal
- ☐ mildly personal
- ☐ not at all personal

108. Was it embarrassing to answer certain questions?

- ☐ extremely embarrassing
- ☐ somewhat embarrassing
- ☐ mildly embarrassing
- ☐ not at all embarrassing

THANK YOU FOR COMPLETING THIS SURVEY. NOW PLEASE GO DOWN THE HALL AND TELL THE PERSON WHO TALKED WITH YOU THAT YOU HAVE FINISHED.

THANK YOU FOR COMPLETING THIS SURVEY.

NOW PLEASE GO DOWN THE HALL AND TELL

THE PERSON WHO TALKED WITH YOU THAT

YOU HAVE FINISHED.

Appendix E

INSTRUCTIONS USED TO RATE THE SOCIAL DESIRABILITY OF AHS ITEMS

WE ARE DOING A STUDY TO SEE IF PEOPLE OF DIFFERENT AGES THINK THE SAME WAY ABOUT THINGS. IN THIS PART OF THE STUDY, WE WANT TO FIND OUT YOUR IDEAS ABOUT HOW OLDER PEOPLE THINK. WE ARE ESPECIALLY INTERESTED IN YOUR IDEAS ABOUT HOW OLDER PEOPLE THINK ABOUT TEENAGERS.

DIRECTIONS: Below are two statements which might be used describing a person your age.

Rating	Statement
_____	1. She gets good grades in school.
_____	2. She shoplifts a lot.

Please rate the two statements as to how socially desirable or socially undesirable AN OLDER PERSON would consider it to be when used to describe someone YOUR AGE. WE ARE NOT INTERESTED IN WHETHER THE STATEMENT DESCRIBES YOU, OR WHETHER YOU THINK THAT IT'S DESIRABLE OR UNDESIRABLE. Just rate it according to how you think an older person would react. Use the rating scale shown below in making your ratings.

Rating	Meaning of Rating
1	Extremely Undesirable
2	Very Undesirable
3	Somewhat Undesirable
4	Slightly Undesirable
5	NEUTRAL
6	Slightly Desirable
7	Somewhat Desirable
8	Very Desirable
9	Extremely Desirable

Your task is to read and rate the social desirability of each of the statements on the this page, using the rating scale shown below. REMEMBER that you are to judge the statement in terms of whether you think that an older person would consider them to be socially desirable or undesirable WHEN APPLIED TO SOMEONE YOUR AGE. Try to rate every statement.

Rating	Meaning of Rating
1	Extremely Undesirable
2	Very Undesirable
3	Somewhat Undesirable
4	Slightly Undesirable
5	NEUTRAL
6	Slightly Desirable
7	Somewhat Desirable
8	Very Desirable
9	Extremely Desirable

1._____She does not drink alcohol.
2._____She gets frequent headaches.
3._____She has had sex with a number of different boys.
4._____She has never been pregnant.
5._____She sleeps well at night.
6._____She has used a variety of drugs.
7._____She has often has trouble with constipation.
8._____She sometimes masturbates.
9._____She has never kissed a boy.
10._____She has had an abortion.
11._____She smokes cigarettes.
12._____She has used cocaine.
13._____She does not bathe often.
14._____She gets tired easily.
15._____She has a good appetite.
16._____She never uses drugs.
17._____She has had oral sex.
18._____Her health is excellent.
19._____She gets embarrassed easily.
20._____She has never gone all the way and had sexual intercourse.
21._____She is a shy person.

Appendix F

SOCIAL DESIRABILITY SCALE VALUES (SDSV) ON AHS ITEMS

ITEM	SOCIAL DESIRABILITY SCALE VALUE*		
	Mean	Median	Mode
She does not drink alcohol.	3.143	3.000	2
She gets frequent headaches.	5.429	5.333	5
She has had sex with a number of different boys.	7.429	7.333	7
She has never been pregnant.	3.000	2.500	7
She sleeps well at night.	3.429	3.750	4
She has used a variety of drugs.	7.429	7.667	8
She has often has trouble with constipation.	5.429	5.375	5
She sometimes masturbates.	6.426	6.250	5
She has never kissed a boy.	5.000	5.000	5
She has had an abortion.	7.571	7.750	7
She smokes cigarettes.	6.286	6.337	6
She has used cocaine.	7.571	7.667	8
She does not bathe often.	6.857	7.000	7
She gets tired easily.	5.857	5.667	5
She has a good appetite.	3.857	3.750	3
She never uses drugs.	2.429	2.333	2
She has had oral sex.	6.286	6.250	6
Her health is excellent.	2.429	2.125	2
She gets embarrassed easily.	5.286	5.333	5
She has never gone all the way and had sexual intercourse.	3.857	3.667	4
She is a shy person.	5.143	5.000	5

*items have been rescored so that low SDSV's represent socially desirable responses and high scores represent socially undesirable responses: 1=extremely desirable, 2=very desirable,3=somewhat desirable, 4=slightly desirable,5=NEUTRAL,6=slightly undesirable, 7=somewhat undesirable,8=very undesirable, 9=extremely undesirable.

Appendix G

CONSENT FORM

The Teen Clinic is doing a study to survey young women about their health and the health care they have received. They are surveying young women who are patients of the clinic at University of California, San Francisco and I have been invited to be a subject in this study.

1. I agree to fill out some questionnaires and to have (name of interviewer) ask me some questions about my health and my experiences in the clinic. This will take about 30 minutes.

2. I do not have to take part in this study. If I don't want to be in the study or I want to stop anytime, I just have to say no.

3. I understand that some of the questions are very personal and might be hard to answer, but that I don't have to answer them if I don't want to.

4. My name will not be used. Only a number will be used. Every effort will be made to assure that the materials are kept confidential. The doctors and nurses in the clinic will not know what I have said.

5. I will not benefit directly from being in the study. The researchers hope to learn more about how young women feel about health care which may help young people like myself in the future.

6. Whether I take part in the study or not, will not affect in any way, the health care I receive here at the Medical Center. It will not be part of my medical record.

7. I understand that as part of the study, the researchers may want to look at my medical record.

(Continued on next page)

Consent Form (continued)

8. I understand that I will be paid $5.00 for being in the study, even if I decide to not answer some of the questions or if I want to stop before the study is over.

9. I have been offered a copy of this consent form and the Experimental Subjects' Bill of Rights.

10.I have talked to (name of person explaining study) about this study and she has answered my questions. If I have other questions I may call her or Shana Millstein at 666-2184.

_____ _____

Date Subject's Signature

If there is a followup to this study, I agree that it is all right for someone in the research team to contact me to ask if I want to take part.
I can best be reached in the following way:

Address:_____

_____

Phone:_____

_____ _____

Date Subject's Signature

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

EXPERIMENTAL SUBJECT'S BILL OF RIGHTS

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject I have the following rights:

1) To be told what the study is trying to find out,

2) To be told what will happen to me and whether any of the procedures, drugs, or devices is different from what would be used in standard practice,

3) To be told about the frequent and/or important risks, side effects or discomforts of the things that will happen to me for research purposes,

4) To be told if I can expect any benefit from participating and, if so, what the benefit might be,

5) To be told the other choices I have and how they may be better or worse than being in the study,

6) To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study,

7) To be told what sort of medical treatment is available if any complications arise,

8) To refuse to participate at all or to change my mind about participation after the study is started. This decision will not affect my right to receive the care I would receive if I were not in the study.

9) To receive a copy of the signed and dated consent form,

10) To be free of pressure when considering whether I wish to agree to be in the study.

If I have other questions I should ask the researcher or the research assistant. In addition, I may contact the Committee on Human Research, which is concerned with protection of volunteers in research projects. I may reach the committee office by calling: (415) 666-1814 from 8:00 AM to 5:00 PM, Monday to Friday, or by writing to the Committee on Human Research, University of California, San Francisco, CA 94143.

Call X1814 for information on translations.

Appendix H

RANDOMIZATION PROCEDURE

The randomization procedure was carried out in two phases. During Phase 1, subjects assigned to each interviewer were assigned to a single condition in blocks of six. The probability of being assigned to any one condition was set at .33. In Phase 1, 42 subjects were assigned to conditions as follows: face-to-face interview (n=13), questionnaire (n=14), and computer interview (n=15). Two subjects were not assigned to a condition; these subjects were automatically given questionnaires because there was no interviewer available. The condition to which subjects were assigned and the actual condition in which they were run is shown below:

		CONDITION IN WHICH SUBJECT WAS RUN			
		I	Q	C	Total
ASSIGNED CONDITION	I	12	1	0	13
	Q	0	13	0	13
	C	2	1	11	14
	Not Assigned	0	2	0	2
	Total	14	17	11	42

All cases in which a subject was given a questionnaire rather than the condition to which she was assigned was due to the unavailability of an interviewer, as were the two cases in which subjects were automatically given questionnaires. Among the three subjects assigned to the computer interview who were not run in that condition, two were due to computer malfunction and one was due to the unavailability of an interviewer to set up the computer.

In Phase 2 of the randomization procedure, an attempt was made to deal with the problem of interviewer unavailability and computer malfunction by changing the randomization procedure in two ways.(18) Based on the probability of actually running a subject in the condition to which she was assigned, the probabilities of assignment to the computer interview and face-to-face interview conditions were increased so that the actual numbers of subjects run in each condition would be approximately equal. Secondly, random assignment envelopes were prepared so that subjects were randomly assigned to two conditions, in the event that it was not possible to run her in the first condition. Thus, if a subject was first assigned

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(18) The unavailability of interviewers and computer malfunctions were assumed and shown to be random events which were not systematically related to subject characteristics. Data in relation to this assumption are presented in the Results section.

to a computer interview and the computer was unavailable, the interviewer would run the subject in the second condition assigned.

Appendix I

PARTIAL LISTING OF THE COMPUTER PROGRAM

```
OK, Let me explain a few things.

I will ask you questions about your health,
how you feel about things, the health care you have
received, and the things you do for your health.

The answers you type in are confidential.
Your name is not used, only a number is used.

You must press the <RETURN> key once after typing
your answer. Please try to answer each question
as honestly as you can.



                    Press <RETURN> to go on....
```

```
Some questions ask you to answer yes or no.
For example, I might ask:

Do you ever go to the movies?  Answer yes or no- SURE

Only answer yes or no..... YES

Good.  If you want, you could answer y or n
and I'll still know what you mean.
For example:

Do you like hamburgers?-  Y

Good.
                    Press <RETURN> to go on....
```

Other questions ask you to pick one
of a few choices. For example:

How many times have you gone to the movies this week?

A) not at all
B) once
C) more than once Answer A, B, or C- C

Good!

Press <RETURN> to go on.....

Sometimes you can pick more than 1 answer. Like:

Which of the following things do you like to eat?
As I list something to eat, you put an X by it
if you like to eat it.
If you do not like to eat it then simply hit <RETURN>.

French fries- X
Oranges- X
Candy- X

Press <RETURN> to go on....

On some questions, you just have to type in an answer. You don't have to worry about your spelling on these answers!

For instance, I might ask you:

What day of the week do you like best? ALL OF THEM

What day was that? SATURDAYS

I like weekends too!

OK, now I'll start asking you some questions.
Press the <RETURN> key when you are ready....

In general, how would you describe
the state of your health?

A) Excellent
B) Good
C) Fair
D) Poor

Choose A, B, C, or D- A OR B

Pick the answer that is closest... A

Have you been sick at all during the last year?
(For example, sick enough to stay home from school?)

Choose yes or no- NO

Appendix J

ACL Item Scoring and Frequency of Subjects' Responses

ACL ITEM	Scoring Direction	N of Subjects who Endorse	ACL ITEM	Scoring Direction	N of Subjects who Endorse	ACL ITEM	Scoring Direction	N of Subjects who Endorse
1	+	15	31	-	34	61	+	36
2	+	45	32	not scored	19	62	+	27
3	Dropped	--	33	+	14	63	+	26
4	-	12	34	+	10	64	-	26
5	-	23	35	+	5	65	+	30
6	-	26	36	-	33	66	-	34
7	+	23	37	-	15	67	not scored	25
8	+	4	38	+	22	68	not scored	4
9	-	42	39	-	14	69	-	17
10	-	24	40	-	17	70	+	10
11	+	38	41	+	16	71	+	20
12	+	25	42	+	25	72	+	30
13	+	42	43	+	16	73	-	35
14	not scored	27	44	+	36	74	+	29
15	+	28	45	+	19	75	-	12
16	+	21	46	-	5	76	-	7
17	+	25	47	+	19	77	-	5
18	-	17	48	-	13	78	-	29
19	+	15	49	+	35	79	-	7
20	+	50	50	-	22	80	-	24
21	+	19	51	+	8	81	not scored	10
22	+	47	52	+	8	82	-	4
23	-	6	53	-	11	83	-	17
24	-	16	54	-	46	84	-	13
25	-	15	55	+	19	85	-	22
26	+	7	56	-	14	86	not scored	13
27	-	7	57	-	13	87	+	10
28	-	10	58	+	8	88	-	9
29	-	4	59	+	24	89	-	30
30	+	38	60	+	13	90	-	10

Appendix K

Changes Made on A Priori ACL Subscales

A PRIORI SUBSCALES	∝*	Scale Items	CHANGES MADE ON SCALE	FINAL SUBSCALES	∝*
Anxiety	.87	6,37,40,54, 64,73,80,83, 84,85,89,90	None	ANXACL	.87
Anger	.82	4,5,28,29, 50,53	None	ANGER	.82
Relaxation	.75	11,19,30,52, 60,61,65	subscales Relaxation and Reassured were combined to form a single subscale	RELAX	.81
Reassured	.64	16,59,62			
Withdrawl	.60	10,25,48,56, 88	One item was added to subscale (item 57)	DEPR	.64
Involvement	.71	1,2,22,33, 34,49,72	One item was added to subscale (Item 20)	INVOLVE	.71
Mastery	.73	12,17,21,47, 71	One item was added to subscale (Item 42)	MASTERY	.78
Positive Self-Image	.70	8,13,26,38, 58,87	One item was added to subscale (Item 70)	PSI	.77
Negative Self-Image	.86	23,27,39,76, 77,79,82	Items 27,76,77,82 were retained. Items 23,39,79 used to form new scale VULACL	NSI	.77
Embarrassment	.61	9,31,66	All items were used in new subscale VULACL	VULACL	.81
Powerlessness	.65	24,36,46,57 75	Items 36,75 on VULACL. Items 24,46 not used. Item 57 was moved to subscale DEPR		

* Chronbach's standardized alpha

Appendix L

ACL Subscales

SUBSCALE NAME	CHRONBACH'S ALPHA (standardized)	ACL Items Included on Scale
ANXACL (Anxiety)	.87	anxious fearful frightened nervous scared tense uneasy unsure upset uptight worried wound-up
VULNACL (Vulnerability)	.85	awkward embarrassed exposed foolish self-conscious vulnerable undignified
ANGER (Anger)	.80	angry annoyed irritated mad
DEPR (Depressive Affect-Withdrawl)	.65	bored depressed indifferent passive powerless withdrawn
NSI (Negative Self Image)	.75	dirty ugly unattractive unfeminine
RELAX (Relaxation)	.81	calm comforted contented easy-going leisurely reassured relaxed relieved secure
INVOLVE (Involvement-Active Participation)	.73	active alert cooperative curious energetic enthusiastic interested talkative
MASTERY (Mastery)	.75	capable confident courageous grown-up indenpendent strong
PSI (Positive Self-Image)	.75	attractive clean dignified feminine pretty special wholesome

Appendix M

Coding Scheme Used to Quantify Subjects' Responses
What Have You Heard About Pelvic Examinations?
What Would You Tell A Friend About Pelvic Examinations?

Coding Category	Example of Response
1. References to the actual procedure. Includes descriptions of the procedure, instruments used, position on table, reference to rectal examination.	"I've heard what they do to you" "You lay on a table and they put a speculum in you and feel around"
2. Importance and/or Rationale for Procedure. Statement of importance, reference to ruling out or discovering pathology.	"It's necessary to have one", "They can tell if you have cancer" "They see if you're healthy"
3. Reference to Physical Sensation. Any reference to how pelvic exam feels, excluding references to pain.	"I heard what they feel like", "They feel kind of funny"
3.1 Painful	"They hurt"
3.2 Not painful	"They are not painful"
4. Reference to Psychological States	"They felt bad about it"
4.1 Self-consciousness and/or embarrassment	"I heard how embarrassing they were"
4.2 Absence of self-consciousness and/or embarrassment	"My mother said it was nothing to feel embarrassed about"
4.3 Fear and/or anxiety	"My friends are scared to have one"
4.4 Absence of fear and/or anxiety	"Nothing to get scared about, no big deal"
5. Reference to comfort	"They are not uncomfortable"
5.1 Discomfort	"She said they were a bit uncomfortable, but they didn't really hurt"
6. Issues Pertaining to Sexuality	"Doctor was a lesbian, it was really gross to have doctor getting into patient
7. Provider Attributes	"Important to have good doctor"
8. Other Information	"Ask questions"
8.1 Other Positive Information	"They are OK, not bad"
8.2 Other Negative Information	"They are sick, weird"

* Agreement between raters was 90%. All categories were developed a priori except for 5, 5.1, and 7. Among 251 responses, 4.9% were uncodable.

Appendix N

Coding Scheme Used To Quantify Subjects' Responses
What Were The Good Things About Your Last Pelvic Exam?

Coding Category	Example of Response
1. Issues pertaining to knowledge about one's health and/or body	"Knew what was going on inside me"
1.1 Issues pertaining to pathology	"Could tell if I'm OK"
1.1.1 Absence of pathology	"There was nothing wrong"
1.1.2 Presence of pathology	"They found I had an infection"
2. Issues pertaining to subject's state	"I felt good about it"
2.1 Relaxed	"I was pretty relaxed"
2.2 Not Scared	"I wasn't scared, that was good"
3. Issues pertaining to the provider	"Doctor was good"
3.1 Interpersonal factors	"Doctor was nice, caring"
3.2 Technical and/or skill factors	"The doctor did a good exam"
3.3 Sex of provider	"Easier because a woman did it"
4. Attributes of the examination	"Better than most exams"
4.1 Speed of exam	"It was over quickly"
4.2 Absence of pain	"It wasn't painful"
5. Other good things about exam	"I got my birth control pills"
6. Nothing was good about the exam	

* Agreement between raters was 98%. All categories were developed a priori except for 1.1.2, and 7. Among 102 responses, 2.9% were uncodable.

Appendix O

Coding Scheme Used to Quantify Subjects' Responses
What Were the Bad Things About Your Last Pelvic Exam?

Coding Category	Example of Response
1. Pain	"It was very painful"
1.1 Pain in reference to speculum	"It hurt when they used the clamp"
2. Fear and/or Anxiety	"I was scared to have it"
2.1 Fear/anxiety in relation to pathology	"I was afraid they would find something"
3. Self-consciousness	"Embarrassed"
3.1 Intrusion of genitals	"Its gross when people stick fingers in me
4. Discomfort	"Some discomfort"
4.1 Physical discomfort	"It felt funny"
4.2 Psychological discomfort	"Didn't feel good about it"
5. Provider Attributes	"I liked the doctor"
5.1 Technical and/or skill factors	"Doctor didn't know how to do a pelvic"
5.2 Sex of Provider	"She was a woman, that was nice"
6. Issues pertaining to pathology to pathology.	"They found something wrong"
7. Other bad things about the exam	"It was disgusting"
7.1 Speed of exam	"It took a long time"
7.2 Speculum	"The speculum is the worst thing"
8. Everything was bad	
9. Nothing was bad	

* Agreement between raters was 90%. All categories were developed a priori except for 6, 7.1, and 7.2 Among 100 responses, 2.0% were uncodable.

Appendix P

Coding Scheme Used To Quantify Subjects' Responses

Why Would You Choose This Method < Of Administration > ?

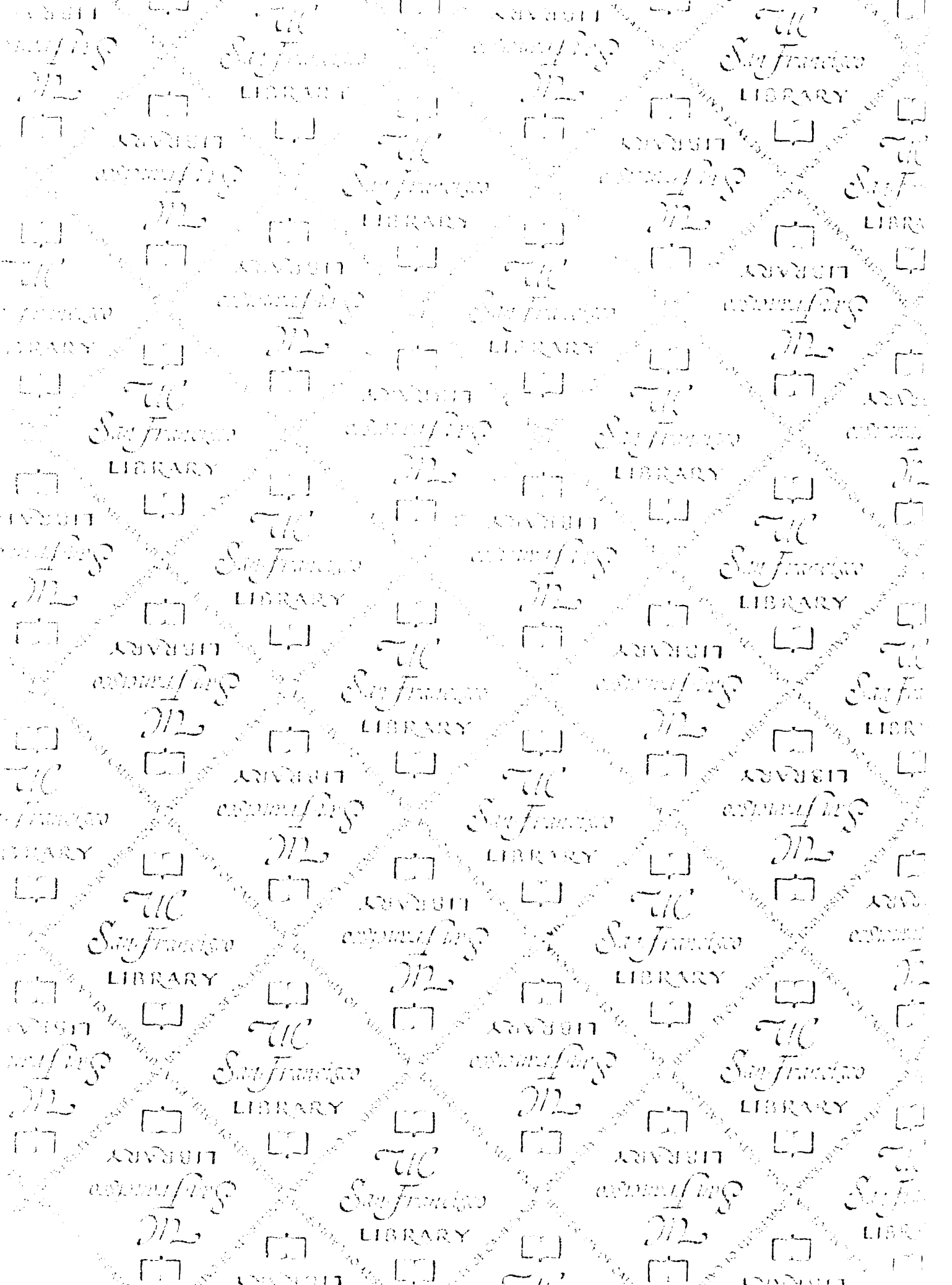
Coding Category	Example of Response
1. Issues pertaining to self-presentation. References to shyness, embarrassment.	"I am a shy person", "I would be less embarrassed"
2. Issues pertaining to confidentiality and/or privacy	"It's more private"
3. Information Transmission	
3.1 Subjects ability to express or understand	"I could be understood and explain myself better"
3.1.1 Distraction/Concentration	"I would be able to concentrate more"
3.1.2 Respond Freely/Elaboration	"I could explain myself, change my mind"
3.2 Methods ability to express or understand	"She could explain the question", I could get some understanding"
3.2.1 Computer malfunction	"The computer might mess up"
4. Comfort	"I would be more comfortable"
5. Issues pertaining to interpersonal contact	
5.1 Likes interpersonal contact	"I like to talk to people"
5.1.1 Rather talk to person than machine	"Better to talk to person than a computer"
5.1.2 Doesn't like talking to machine	"I don't like talking to machine"
5.2 Doesn't always want interpersonal contact	"Sometimes its better if you don't have to look at another person"
6. Other	
6.1 Fun, interesting	
6.2 Fast	
6.3 Easy	
6.4 Skills	"Its hard to read"
6.5 Likes method	"I like to fill out questionnaires"
6.6 Dislikes other method	
7. Uncodable Response	

* Agreement between raters was 95%. All categories were developed a priori except for 3, 3.1, and 3.2. Among 135 responses, 4.4% were uncodable. Most of the uncodable responses were "not personal" or a similar response. It was not possible to determine whether this meant the method was impersonal such as not talking to a person, or whether the response meant not personal in terms of privacy.

Appendix Q

NEED FOR APPROVAL IN NORMATIVE SAMPLES OF FEMALES

Sample	Number of Subjects	Marlowe-Crowne Social Desirability Scale	
		Mean	Standard Deviation
Introductory psychology students	86	13.51	4.75
Volunteers for psychological experiment	59	16.04	4.44
College freshmen and sophomores	60	14.20	4.62
Secretarial school students	60	16.27	5.53
Insurance Company employees	88	15.42	6.16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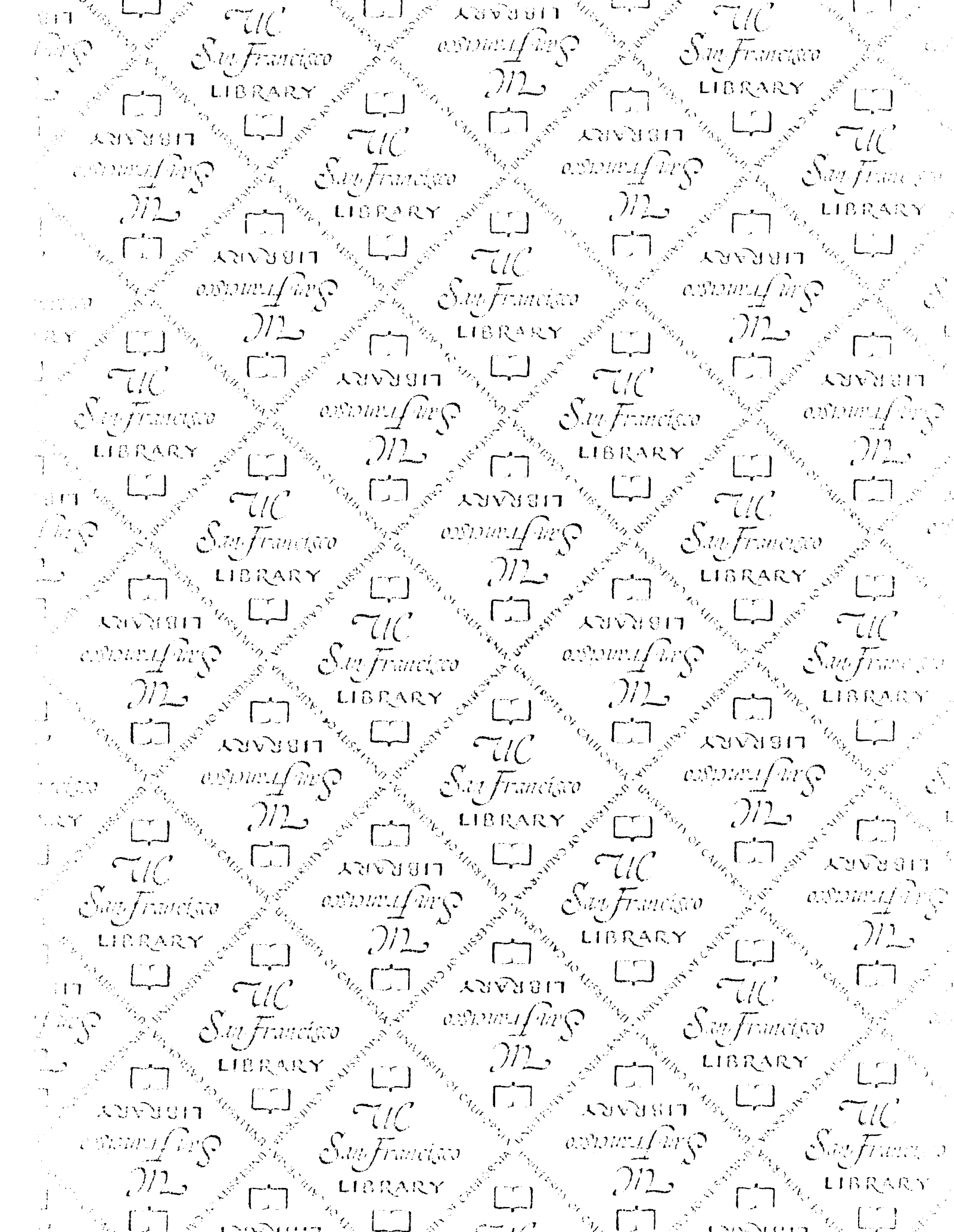
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