

# Limited Patient Knowledge as a Reproductive Risk Factor

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A study was designed to obtain information on the concerns, attitudes, beliefs, and knowledge that women have about reproduction in order to determine how these factors affect their ability to plan pregnancies.

A clinical population was studied and in general found to be uninformed and misinformed about basic physiological facts relating to reproduction. Their lack of information or their misinformation about the menstrual cycle, safe time for intercourse, and contraception contributed to unwanted pregnancies. They did not know enough to prevent pregnancy.

The patients were aware of some deficits in their knowledge about reproduction and expressed a desire to learn more. This study suggests that individualized education may be necessary to break the pattern of unwanted pregnancies and the feelings of apathy and fatalism so common among low-income patients.

Numerous studies have identified medical and social factors which should be assessed to determine if prenatal patients constitute a high risk for delivery.<sup>1-3</sup> Many such patients, despite an array of high-risk factors, continue in repeated childbearing at considerable risk to themselves, their infants, and their families. Evidence is beginning to emerge that some of these patients are not able to escape this pattern as they do not possess the necessary information on the menstrual cycle, the risk of pregnancy, or the proper use of contraceptives to effectively prevent pregnancy, nor do they possess sufficient motivation. In some cases, culturally influenced beliefs about the menstrual cycle have been shown to influence the choice and use of contraceptive methods.<sup>4</sup> In others, physician mismanagement of contraceptive education has been blamed for failures.<sup>5</sup>

It has been pointed out that it is important for health educators to differentiate between those patients who lack information on contraception and abortion and those patients who are misinformed in these areas.<sup>6</sup> The provision of information to those who lack it is not necessarily an easy task, but a decidedly more difficult task is the identification of those who have incorrect information affecting health behavior, misinformation which must be eliminated before education can take place.

The authors wished to establish whether such misinformation or lack of information among high-risk pregnant women was contributing to the incidence of pregnancy. This study was designed to determine if patient concerns, attitudes, beliefs, and knowledge about reproduction might affect their ability to plan pregnancies.

## Methods

A study was done in a prenatal clinic for multi-ethnic, low-income clientele. The clinic was staffed by the faculty and residents of a family practice residency. Attempts were made to con-

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tact all patients coming in for their first prenatal visit during a three-month period, 61 women in all. Fifty-two registered patients were actually contacted and invited to participate in the study, and 43 of these expressed a willingness to do so. However, after some "no shows" and some patient noncompliance, 31 patients were finally interviewed, which constituted 51 percent of the new patients appearing at the clinic during that time. A demographic profile of these patients is shown in Table 1.

The interviewed patients were paid a \$10 fee for participating in an approximately two-hour interview conducted at the clinic, in their homes, or wherever it was most convenient or comfortable for the individual. A comprehensive questionnaire was used by trained interviewers, eliciting demographic details, knowledge, and beliefs on menstruation, childbearing, contraception, pregnancy, and abortion. A multilingual interviewer conducted those interviews in which Spanish or French were the only languages spoken by the patients.

The information collected was fed into a computer programmed to handle open-ended, multiresponse-type information, and individual and summary data were tabulated and analyzed from the computer sheets.

### Attitudes Toward Childbearing

An attempt was made to determine what these patients believed to be the motivating factors for childbearing in others. The majority of the women included love as a basic reason for having children, either love of children or love of spouse. Nine percent of the responses expressed the view that having children was a way of achieving immortality, "you are not dead," children can "carry on the name." However, nearly one fourth of the answers described childbearing as something beyond control: some could give no reasons for having children, some felt children "just happen," some believed that the number of children a woman had was up to God. The idea that childbearing is the proper female role accounted for only two percent of the responses. Eleven percent of the reasons given were less positive, such as "to obligate the man and keep marriage together," "to spite the man," or "to develop your character."

A possible interpretation for the negative or vague views on childbearing may be the inability on the part of parents to plan pregnancies. A woman may lack accurate information or have misinformation which presents a barrier to effective contraception. She may be attempting to avoid having a child, but even when she feels she is following instructions she may find pregnancy impossible to prevent—thus, children "just happen" or "what comes is God's will."

The women were asked how many children they wanted and why they chose that number. They stated the importance of only having the number of children they could support (29 percent) and only having the number of children that they could emotionally nurture (25 percent). Although most of the women had given love of children as a basic reason for childbearing, only six percent considered it a factor in determining their own family size. Despite their views, a number of women saw being able to plan family size as beyond their control, 16 percent stating that children just happened and that one could not really plan numbers. Many of the patients wished to limit family size but felt unable to do so with 45 percent of the women having previously had at least one unwanted pregnancy.

One solution to such a situation is termination of pregnancy. All of women were aware of the fact that pregnancy could be terminated by an abortion and were well informed about the legal methods, but 87 percent stated that they did not approve of such a practice. Abortion was equated to "killing" by 47 percent of the women. Their strong aversion may in part explain why these women persisted in continuing even an unwanted pregnancy.

### Contraceptive Knowledge and Use

The women interviewed were reasonably aware of the available methods of contraception and the relative effectiveness of the methods (Table 2). Although all of the women had heard of sterilization of the female as a method of contraception, only 84 percent had heard of a similar procedure being available to males. Perhaps this differential awareness of male-female sterilization may be attributed to a belief reported by over half of the patients that contraception is the sole responsibility of women, while none of them saw contraception as the sole responsibility of the male. This

Table 1. Demographic Profile (N=31)		
	Number	Percent
Age		
Range 17 to 35 years;		
$\bar{X}$ = 22.9 years		
Marital Status		
Married	18	58
Separated or Divorced	5	16
Single	8	26
Ethnic Group		
White	16	52
Black	6	19
Latin-American	8	26
American Indian	1	3
Speak Languages Other Than English*	14	45
Religious Training		
Protestant	18	58
Roman Catholic	8	26
Moslem	1	3
None	4	13
Retain Religious Beliefs	23	85
Educational Level		
Less than high school	14	45
High school	13	42
College—1 year	2	7
College degree	2	7
Incomes Less Than Clinic-Determined Poverty Level**	26	84
*Languages spoken included Spanish, Ottawa, Chippewa, German, Dutch, Hungarian, Otetelo, French, and Arabic.		
**Sliding fee schedule based on income and dependents. For example, a family of three with income of \$6,300 or less would be considered in poverty and would pay no fees.		

belief in female responsibility for contraception is further supported by the fact that 25 percent of the sample never discussed the use or non-use of the contraceptive methods with their partners, or, if they did discuss it, a fourth of those couples did not agree. Other studies have demonstrated the importance of communication between partners for effective fertility control,<sup>7,8</sup> and this communication was lacking for many of the women interviewed.

When asked to state how reliable they thought the methods of contraception were, the women

revealed a good grasp of their relative effectiveness (Table 2). In addition to the methods about which the patients were questioned, a third of the women mentioned other methods that they thought could be used for contraception including: hysterectomy, D & C (dilation and curettage), "doctor turns uterus," vaginal deodorant suppositories, petroleum jelly, "something to dissolve sperm," astrology, aspirin and jelly, and cinnamon or nutmeg in coffee.

In spite of the fact that most of the women in the sample were fairly well informed about the exis-

**Table 2. Methods of Contraception Known to Patients and Their Rating of the Relative Effectiveness of These Methods (N=31)**

Method	Heard of Method* Number	Percent	Patient Rating of Relative Effectiveness of Methods*
Oral contraceptives	31	100	1
Tubal sterilization	31	100	2
IUD	30	97	4
Condom	30	97	6
Diaphragm	30	97	5
Spermicides	29	94	7
Douche	27	87	11
Vasectomy	26	84	3
Rhythm	24	77	10
Withdrawal	24	77	9
Breast-feeding	20	65	8

\* $\bar{X}$  number of methods heard of/patient = 10.5 (Range 6-11).  
 \*\*Ranking based on relative rating by patients on a continuum from most effective to least effective. Number one rating is equated with most effective.

tence of the currently available methods of contraception, a closer examination of the data reveals that a significant number of the women were either misinformed or did not know how the various methods are actually used or how they prevent pregnancy (Table 3). Unfortunately, they best understood the less effective methods of birth control.

This lack of understanding is reason for concern, particularly in regard to the oral contraceptive agents. The pill had been used by 96 percent of the sample, rated by 76 percent as their most effective method, and 50 percent planned to use it in the future. Although 90 percent correctly answered the question on how the pill should be used, misunderstanding was noted in one woman who said she took the pill every other month and in another who stated that she took the pill before intercourse. Sixty-five percent of the pill-users reported that they had forgotten to take pills and eight percent reported that they became pregnant while on the pill. Forty-two percent of the sample had no idea of the mechanism of action of the pill, and many had incorrect information. Twenty-three percent had the notion that the pill "killed" the sperm or "caught" sperm in some fashion. Some clinicians may take the position that it is not necessary for a woman to know exactly how a

method works to use it effectively, but if the patient believes that the pill "kills" the sperm or egg it may be enough to affect her commitment to its use, particularly if she is opposed to or ambivalent about abortion.

This lack of understanding (Table 3) is also evident with the intrauterine device (IUD), especially in regard to misinformation: 23 percent had incorrect information on how it should be used and 53 percent had incorrect information on its mode of action. It was interpreted by many as a "shield" or a "plug" that kept the sperm and egg from "getting together." This may seem to be simply a quaint idea and not a barrier to contraceptive use; however, this notion of something "plugging" the female was thought by 39 percent of these women to be dangerous to the health, an idea which was expressed in their concerns about menstruation. The IUD was also reported to be an object "tied to the tubes," or one that "keeps the penis from getting all the way back."

Physician-associated methods of contraception such as the pill or IUD allow the health-care professional an opportunity to educate the patient. The opportunity for education is not available, however, for nonphysician-associated methods, such as the use of spermicides, and this may create problems. For example, many of the women in the

**Table 3. Lack of Knowledge and Misinformation on How Contraceptive Methods Are Used and How They Work to Prevent Pregnancies\***

Method**	Method of Use		Mode of Action	
	Percent Who Don't Know	Percent Misinformed	Percent Who Don't Know	Percent Misinformed
Condom N=30	7	0	17	0
Withdrawal N=24	8	4	13	0
Douche N=27	19	0	26	0
Tubal sterilization N=31	19	10	23	16
Oral contraceptives N=31	7	3	42	23
Spermicides N=29	14	10	28	28
Diaphragm N=30	27	7	43	7
Breast-feeding N=20	25	10	60	5
Rhythm N=24	38	4	58	0
Vasectomy N=26	58	4	46	4
IUD N=30	7	23	40	53

\*N is varied; those who had heard of method.

\*\*Listed in rank order from best to least understood.

study believed that spermicides worked by "catching" the sperm and were unaware of the necessary spermicidal activity. Acting on their belief, they thought it necessary to immediately wash out the "caught" sperm, an action directly contrary to effective use of the method.

One fifth of the women thought they would eventually elect sterilization as a method of contraception. Compared to the other methods sterilization was a fairly well understood procedure; however, a significant portion of the women either did not know how it was performed or how it prevented pregnancy. Here, too, there was misinformation which could prevent selection of tubal sterilization since some of the women believed that the procedure caused cancer or that it would eventually necessitate a complete hysterectomy. Many of these women also thought that the procedure was reversible and the tubes would

spontaneously untie in seven years, a belief which offers unfair hope for those who have not completed childbearing and who had selected the procedure believing that it would spontaneously reverse. It might also cause concern for women who would not want to go through such a surgical procedure if they believed it must be repeated in seven years.

Eighty-seven percent of the women in this study had a history of contraceptive use and had tried a mean of 2.2 methods. The methods they selected were not based upon their perception of the unreliability, as spermicides were their second most-tried method and withdrawal their fourth most commonly used method (Table 4). Seventy-seven percent expressed dissatisfaction with various aspects of the methods they had used. Fifty-six percent of the contraceptors said they would be unwilling to again use the methods they had

Table 4. Patient Use of Contraceptive Methods\*

Method	Number of Users/Method	$\bar{X}$ Length of Use	Number Who Disliked Something About Method	Number Unwilling or Unsure of Future Use	Number Who Became Pregnant While Using Method
Pill	26	22.8 months	15/26	9/26	2/26
Foam	8	6 times	8/8	6/8	1/8
IUD	7	5.1 months	7/7	5/7	0/7
Withdrawal	5	16.3 months	5/5	5/5	3/5
Condom	4	5.3 months	4/4	3/4	0/4
Diaphragm	3	10.7 months	3/3	3/3	1/3
Douche	2	3.8 years	1/2	1/2	1/2
Rhythm	2	3 years	1/2	0/2	1/2
Condom and foam	1	2 years	1/1	1/1	0/1
Vasectomy	1	3 years	0/1	—	0/1
Breast-feeding	1	6 months	1/1	0/1	1/1

\*N is 27; four patients had not used contraceptives.

tried. Forty-five percent admitted inconsistency in their use of the methods, either forgetting to take a pill or failing to use a coitus-connected method each time they had intercourse. Despite their use of contraception, ten undesired pregnancies occurred, or 37 percent of the sample failed in preventing a pregnancy during their use of contraception. Four women, in fact, had been pregnant at the time of a six-week postpartum check-up, emphasizing the importance of contraceptive education as a part of prenatal care and hospital postpartum education (Table 5). The failure of over one third of these women to prevent an undesired pregnancy may be attributed in part to:

1. the ineffectiveness of the methods chosen,
2. the inconsistency with which the methods were used,
3. the lack of commitment to prevent a pregnancy,
4. the lack of knowledge necessary to effectively use contraceptive methods, or
5. the misinformation that existed in their minds.

### Knowledge of Female Reproductive Anatomy and Physiology

The majority of women interviewed in the prenatal clinic did not understand female reproductive physiology (Table 5). Sixty-one percent

could not correctly answer questions as to why the menstrual periods occurred, the source of menstrual blood, or why the menstrual flow stopped. In the 1970s, perhaps health-care personnel expect that women are better informed about their bodies; however, 32 percent of the women had *not* been told about menstruation before their menarche and most were quite frightened by the event. Religion, cultural background, and ethnic affiliation were all important factors in shaping their knowledge and attitudes about this aspect of their reproductive lives.

One of the most prominent misconceptions about menstruation involved uterine anatomy. Many of the women seemed to perceive it as an organ which was closed between menstrual periods and which had to open up to allow the blood to get out. They were greatly concerned that nothing impede this process, with 58 percent believing that there were behavioral proscriptions for the menstruating woman, most of which had to do with assuring that the flow continued. They believed that it was dangerous for a menstruating woman to bathe, shampoo her hair, swim, or walk barefoot in the dew because she could catch cold and the flow would stop and back up in the body to cause insanity, a stroke, or "quick TB."<sup>9,10</sup>

The Mexican-American women also attributed

**Table 5. Knowledge Deficits Possibly Contributing to Ineffective Control of Fertility (N=31)**

	Number	Percent
Did not understand menstrual cycle	19	61
Did not know "safe time" for unprotected intercourse	13	42
Did not know time of ovulation	15	48
Had become pregnant while using a method of birth control	10	37
Had had pregnancies closer together than desired	7	23
Had become pregnant before six-week postpartum check	4	13

sterility to a "cold" uterus caused by bathing during menstruation, by eating "cold" foods, or taking "cold" medicines which would stop menstrual flow.<sup>11,12</sup> Clinicians may question the necessity of determining if such beliefs are held by their patients; they may feel that they are old-fashioned ideas which can be ignored. However, these beliefs may affect the selection or rejection of contraceptive methods and ultimately influence patients' ability to effectively plan pregnancies. For example, the idea that it is unhealthy for the normal menstrual flow to be decreased causes women who hold such beliefs to be concerned if there is diminution or cessation of the flow while taking oral contraceptives. They fear that some menstrual blood is being retained in their bodies and would eventually cause problems.

Many women had strong feelings influenced by attitudes towards menstruation as to the proper time to have intercourse. Fifty-five percent of the women stated that intercourse should not take place during the menses. Only one woman gave messiness as a reason; the others saw such a practice as unhealthy, resulting in hemorrhage, infection, or even uterine cancer. This attitude presents an obvious problem for them if the spotting or break-through bleeding commonly associated with pill or IUD-use occurs. Sixteen percent believed that pregnancy was most likely to occur during menses because the uterus was open, allowing the sperm to enter. Conversely, it is logically closed at mid-cycle and therefore thought safe for intercourse without risk of pregnancy.

Menstrual attitudes may also influence initial acceptance of the IUD as a contraceptive method irrespective of side effects. From a medical standpoint many physicians prefer to insert the

device near the end of the menstrual period. When directly questioned as to their willingness to accede to such a practice, however, one third of the women otherwise willing to use the IUD stated that they would not do so if it were to be inserted at that time because it would cause embarrassment.

There were only 16 women who did realize that a pregnancy could occur during the menopausal years; four of these did not know that there might be physical or emotional problems for the mothers, and one said there would be none. There was more uncertainty regarding the possible effect on the fetus of a pregnancy at this time of life. Only two women mentioned the possibility of fetal abnormality; in other words, 94 percent of women in their childbearing years did not have this critical information.

## Conclusions

This study done among patients at a prenatal clinic serving a low-income, multi-ethnic population, established the knowledge base of the women concerning the female reproductive cycle. The answers given by the women about their bodily functions demonstrated that they lacked correct information and/or had incorrect information, some of which was attributable to the traditional female folklore of their respective sociocultural group. This was found to be true in their beliefs and attitudes towards menstruation, knowledge and use of contraception, and abortion. The majority of the women forming this sample population in the clinic were already at obstetrical high risk when standard medical and sociodemographic

factors were assessed. Their beliefs and attitudes contributed to and exacerbated these factors in a significant way: they did not know enough to keep from getting pregnant!

Most of the women interviewed were well aware of deficiencies in their knowledge and expressed the desire to learn more. Ninety-three percent expressed the hope that their children would know more and approved of sex education for their children in school. They were not, of course, equally aware that they had misinformation, or that the traditional folk beliefs they held were untrue. These findings are supported by a Johns Hopkins University School of Medicine researcher who found that 70 percent of inner-city women "did not have enough information to protect their own fertility, practically plan their family, and did not have enough information to be adequate teachers of their children." Further, more than 90 percent knew where such information was available, ie, they knew the location of family planning clinics but they did not seek out such information because they thought they knew the answers.<sup>13</sup>

This poses a dilemma for those members of the health-care team responsible for patient education. Most educational schemes in clinical settings are based on the premise that the presentation of proper information is what is required to improve patient knowledge and behavior. This is the case only where patients lack information, where there is a data gap which must be filled. A very different sort of problem, however, is the replacement of incorrect information. The patient who is presented with a fact which conflicts with what she believes to be true (and which may also conflict with deeply held cultural beliefs) is not necessarily going to reject the old and take on the new because the correctness of the new is scientific fact. To deal with this problem health-care personnel must learn to ask other sorts of questions, to elicit information which may seem to them ridiculous or silly, and to do so in a nonjudgmental and noncondescending manner. They will then have to develop educational programs in an individualized manner to allow for the variety of beliefs among their patients. If social and cultural differences are not allowed for, there may be a continuation of the kinds of problems which are rife in prenatal care to the indigent or ethnic patient. These women are caught in a never-ending cycle of mutually rein-

forcing circumstances: they do not have the knowledge to effectively prevent pregnancies, and they firmly believe that pregnancies, even unwanted ones, should be carried through. Therefore, new information must be carefully presented in a way which does not do violence to their belief systems. Furthermore, patients must be convinced that the new information is sensible and can contribute to their own well-being and to that of their children. Otherwise, as a 17-year-old unmarried woman in her third pregnancy told an interviewer when asked why people have children, "Some slip up, some plan, and some have 'em to have 'em."

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