

EFFECTS OF DIFFERING MOTIVATIONAL LEVELS ON  
ADOLESCENT COMPREHENSION OF A BIRTH  
CONTROL PILL INSERT

By

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## CHAPTER I

### INTRODUCTION

Although rates of unwanted adolescent pregnancy have increased in recent years until they have reached the present epidemic proportions, unmarried teenage pregnancy has been a major social issue for decades. Society's concern regarding teenage pregnancy stems from the multifaceted difficulties that these pregnancies produce: difficulties for the teenager and for her child. Pregnant teenagers encounter many problems that impact on all aspects of their lives. Whether they elect abortion or to carry the fetus to term, the stresses they face are enormous. The children born of these pregnancies also experience difficulties. These children are more vulnerable; they are at higher risk at birth and throughout their childhood to health-related problems (Johnson, 1974).

The difficulties encountered by mother and offspring also have a profound impact on society. One of the ways in which American society has tried to deal with the problem is by increasing the number of government programs. Unfortunately, though, this and many other possible solutions to this complicated problem have been tried; none as yet has succeeded. In fact, despite society's attempts, problems with adolescent sexuality and pregnancy seem to be on the rise. Statistics document that teenagers are sexually active and are not inclined to use contraception. There were an estimated 3.1 million adolescent females sexually active in 1971, and an estimated 4 million adolescent females sexually active in 1976

(Dryfoos & Heisler, 1978; Zelnik & Kantner, 1977). The statistics of these authors indicated that 15 percent of all 15- to 19-year-old females experienced at least one pregnancy and 80 percent of those first pregnancies occurred prior to marriage. Around 90 percent of these "first time" pregnant teenagers did not use contraception, many because of a belief that they could not become pregnant. However, a large number knew they could become pregnant, but stated that effective medical methods of contraception (birth control pills, intrauterine device [IUD], and diaphragm) were unavailable to them. Thus the unavailability of medical methods of contraception was partially responsible for both the high prevalence of contraceptive non-use and the tendency for teenagers to use the less effective, non-medical methods of contraception (condoms, withdrawal, foams/spermaticides, douching, rhythm).

In the past, the more effective contraceptives were made legally inaccessible to teenagers by state laws. During the 1970's, these laws have slowly been revoked. Presently, in almost every state, any female, regardless of age, with the capacity to give informed consent may consent to all aspects of her own medical care including contraception. Although there is still some hesitation on the part of many physicians in prescribing contraceptives to minors without parental consent, effective contraceptives have become more accessible to adolescents. This is, in part, due to the great increase in the numbers of adolescents utilizing family planning clinics: from 0.25 million in 1969 to 1.2 million in 1975 (Dryfoos & Heisler, 1978). Although there are still problems with availability to adolescents of the more effective contraceptives, the continuing trend seems to be one of increased accessibility and use of these effective methods (pill, IUD, diaphragm).

As could be expected, when contraceptives are available to teenagers, they overwhelmingly choose effective medical methods, especially the birth control pill. The pill itself has become the most popular method of birth control for all women of childbearing age in this country, including adolescents (Dryfoos & Heisler, 1978; Westoff, 1972). Main reasons behind this popularity of oral contraceptives are ease of use and effectiveness in preventing pregnancy. If taken correctly the pill is 94 to 99 percent effective, making it more effective than any other birth control method other than sterilization (Mayberger & Bell, 1977).

Although increased availability has increased use of the birth control pill, teenage pregnancy rates are still soaring. Even when using this so-called effective method of birth control, teenage use-effectiveness rates are far below those of adults using the same method (Jaffe & Dryfoos, 1976). The adolescent's reduced effectiveness rates in using the pill clearly point out that there are difficulties involved in taking the pill properly. These may be due to factors such as lack of knowledge or understanding of the directions for correct use, or to factors concerning adhering to the correct directions. For example, there are problems with remembering to take one pill every day.

Initially, the information on correct use of the pill should most likely come from the prescribing physician. Information pertaining to directions for use and other important issues (such as side effects) should be presented and discussed when the pills are first prescribed. Although physicians usually present some of this information to their patient, most often it is not covered in sufficient detail (Green, Weber & Krieter, Note 1). Unfortunately, some patients receive no information



whatsoever from their physicians. Doctors seem least willing to initiate discussion of this subject to those in the most need: healthy women and teenagers (Tschetter, 1978). In order that information be available to supplement information received from physicians, the Food and Drug Administration requires that a patient package insert accompany each prescribed package of birth control pills. This insert contains information pertaining to the function of the pill, directions for correct usage, and information about possible side effects.

Although the insert provides the information about the correct way to use oral contraceptives to all women who use the pill, some women, especially teens, exhibit problems in taking birth control pills correctly. If the physician does not provide sufficient information, then the insert should make up for this deficiency. But how efficient is the insert in providing important information? The typical insert is a small, non-substantial piece of paper which contains quite a bit of information and is difficult to read due to small print and unclear phraseology. Thus understanding the information on the insert requires a determination to attend to difficult reading. If women are lacking in motivation to pull out necessary information, having the information available serves no function.

In summary, since teenage pregnancy rates are not decreasing, even with increased usage of the more effective medical methods of birth control such as the pill, it would appear that adolescents are not taking the pill correctly. A possible reason for the lowered effectiveness rates of adolescents using the pill is that some teens are not given sufficient information about correct usage by their physicians when they are prescribing pills. Additionally, it may be that they do not readily

comprehend the information about correct usage provided in the insert. Since some teens are capable of correctly using oral contraceptives, it is possible that a difference in motivation to understand the procedure for correct usage may be related to the discrepancy.

The purpose of the present study is to examine specific variables that influence the teenager's effective use of birth control pills. Motivation to attend to and to comprehend the correct directions for use is one such variable. Teenagers assumed to have different levels of motivation to use the pill effectively will be tested and compared on their comprehension of the insert. Prior experience with birth control pills may influence this outcome and will also be taken into account. Rates of comprehension for the entire group of adolescents in this sample will be compared to rates for a group of females attending college (some of whom are 18 and 19 years old). Additionally, for those females who have been taking birth control pills, knowledge and preference concerning pill packaging, memory, and information sources will be assessed. Through these procedures it is hoped that a manipulatable variable that plays a part in the teenager's misuse of contraception will be discovered. Uncovering a manipulatable variable that increases the teenager's effectiveness in using birth control will be a step in the direction of reducing unwanted adolescent pregnancies.

## CHAPTER II

### LITERATURE REVIEW

The most prevalent theoretical explanation of variables producing teenage pregnancy is quite different from the popular view held. Historically, the theoretical explanation accepted was that teenage pregnancies occur because the female secretly wants to be pregnant. This position was espoused by theorists and is still supported by several recently published studies (Kane, Lachenbruch, Lokey, Chefetz, Auman, Pocus & Lipton, 1971; Mindick, Oskamp & Berger, 1977). Such studies point out that, for some females, there are social reinforcements for becoming pregnant while unmarried. For example, the status of being grown up, fertile, or a "real woman" are important reinforcers. Additionally, for some females, most specifically lower socioeconomic status (SES) females, there are personal reinforcements gained, for example, when pregnancy is used as a means of generating self-esteem or self-worth.

This popular explanation of teenage pregnancy stands in sharp contrast to the view held by most contemporary theorists. The contemporary view is based on literature in the area of adolescent use of contraception. This literature supports another explanation for teenage pregnancy, that unplanned and unwanted pregnancies are due to ineffective contraceptive practices (Furstenburg, Gordis & Markowitz, 1969). Adolescent experience with contraception varies, but most young women who have had sexual intercourse have used some form of contraception at some time

(Kantner & Zelnik, 1973). While this may be true, adolescent pregnancy rates suggest that the methods used were either unreliable or they were used inefficiently, producing ineffective contraception. With increasing numbers of both sexually active teenage females and adolescent unwanted pregnancies, knowledge about all aspects of the choice and effectiveness of different methods of contraception for this age group becomes critically important.

Contraceptive use by adolescents appears to be increasing, but the type of contraception preferred and the type used remain relatively stable. Jaffe and Dryfoos (1976) reported that of the different methods of birth control used by adolescents in 1971, oral contraceptives were the most popular method (17.9%), followed by use of the condom (12.3%), and withdrawal (10%). Notably, 53 percent of the adolescents surveyed in this national study used no method of contraception at last intercourse. This figure is dramatically higher (71%) when surveying sexually active fifteen-year-olds (Kantner & Zelnik, 1973). More recent findings (Zelnik & Kantner, 1979) have shown an increase, from 1971 to 1976, in the use of contraception by adolescent females. Most outstanding was the use of oral contraceptives which had almost doubled in that period of time. Kantner and Zelnik (1979) found the same methods were the most popular: oral contraceptives (31.2%), condoms (12.6%), and withdrawal (10.6%). Impressively, the majority of sexually active adolescent females in 1976 reported using some method of contraception at the time of last intercourse. Even though the number of teenagers using no method at all had significantly dropped to 36.6 percent, the majority of all adolescents using contraceptives relied on the less effective, non-prescription

methods purchased at a drugstore (condoms, spermaticides, and foams) or a non-prescription method that required no purchase (withdrawal).

This tendency of adolescents to choose the non-medical and often less effective methods is related to several factors: (1) the usual patterns of teenage sexual relations, (2) reservations about the safety of medical methods of contraception, and (3) most importantly, the accessibility of oral contraceptives. With reference to the first factor, sexual relations are usually unplanned and situationally determined for the adolescent. The more effective medical methods of contraception are designed to fit well-established sexual patterns and are not well-suited to the more sporadic patterns of adolescent sexual behavior. No contraception or contraception that can be used episodically, such as the non-medical methods, are often better suited to the teenager's needs. The second factor increasing the use of non-medical methods is that adolescents often have reservations as to the safety of oral contraceptives. Many times these reservations are caused by misinformation. Adolescents only rarely get their information about contraception from an authoritative source such as a professional. Of those who have knowledge about contraception, most receive their information/misinformation from peers and the mass media, with parents, educators, and health professionals contributing minimally (Reichelt & Werley, 1975; Thornburg, 1972). Misinformation about oral contraceptive safety and about the effectiveness of non-medical methods helps to increase the number of adolescents using the less effective methods. The third factor increasing adolescent use of non-medical methods is the inaccessibility of oral contraceptives to adolescents. Teens would often choose oral contraceptives as their preferred method of contraception because of the high reliability/low

pregnancy risk associated with the pill (Lane, 1973). However, acquisition of this more effective method is far more difficult than for non-medical methods. For many years it was against the law to distribute contraceptives to minors without parental consent (Paul & Pilpel, 1979; Paul, Pilpel & Wechsler, 1976). Even though the courts in the 1970's have affirmed the rights of informed, consenting females of any age to confidentially acquire contraception, there seems to be some reluctance to provide these services to adolescents, especially the very young adolescent. Public opinion supports this reluctance (Blake, 1973; Evans, Selstad & Welcher, 1976; Paul & Pilpel, 1979). There are other barriers to the adolescent's use of medical methods. Acquiring a medical method such as the pill requires the initiative to go into some health facility and admit to being sexually active, which is a major step for most adolescents. Additionally, adolescents are concerned about confidentiality and the cost of oral contraceptives (Scales, 1978). When teenagers overcome these obstacles and have all options available to them, their contraceptive choice is clear. Data from the National Reporting System for Family Planning Service (1975) illustrate this point; when teenagers do utilize a health facility with all contraceptive options available, they overwhelmingly choose the most effective methods, with the majority choosing oral contraceptives (in Dryfoos & Heisler, 1978). In summary, these three factors appear to reduce the availability of oral contraceptives to teenagers and are a major force behind the utilization of the more accessible, but less effective non-medical methods of contraception. When teenagers do manage to overcome these barriers, the majority of them choose oral contraceptives as their birth control method.

As we have seen, availability of contraceptives helps determine whether the adolescent uses contraception and the type of contraceptive she uses. Both of these have important influence on teenage rates of pregnancy. For example, teenagers who use contraceptives regularly run an 11 percent risk of pregnancy; those who use no method of contraception run a 58 percent risk (Zelnik & Kantner, 1979). Using contraceptives greatly reduces a teenager's risk of becoming pregnant. Additionally, the particular type of contraception used and how effectively it is used determines the risk of pregnancy. For married couples (who are generally older and more experienced than adolescents), the use-effectiveness of medical methods is notably higher than that of non-medical methods. For example, the use-effectiveness for oral contraceptives for married couples is 94 to 99 percent. Effectiveness rates for teenagers are much lower. Zelnik and Kantner (1979) found that although an increase in sexual behavior was accompanied by an increase in use of the more effective methods of birth control, adolescent pregnancy rates were not affected. These authors found that teenagers used contraception inefficiently and inconsistently. Fewer than one-fifth of those adolescents using a method of contraception reported using it consistently. Since the rate of adolescents using the more effective birth control methods such as the pill is increasing, but this age group is not experiencing the accompanying reduction in pregnancy rates expected, the variables that produce the inefficiency and inconsistency of teenage contraceptive use need to be explored. Possible variables involved in the effective use of contraceptives by adolescents can be categorized in three general areas: (1) demographic variables, (2) variables pertaining to adequate information, and (3) motivational variables.

The first area includes several demographic variables, such as religion, age, geographic location, ethnic status, and socioeconomic status. These variables are often interrelated, making their individual influence difficult to sort out. Religion has an important role in determining teenage contraception use. Kantner and Zelnik (1973) focused upon how the variables of religious sect affiliation and frequency of church attendance affect contraception use. They reported that adolescents associated with fundamentalist religious sects show very low levels of both initial and recent use of contraception. (This is accompanied by a low prevalence of sexual activity.) The use of contraception by this group of adolescents is significantly lower than that for Catholics, nonfundamentalist Protestants, Jews, and those with no religious affiliation. (The choice of the pill does not differ across Catholic-Protestant boundaries. Both use the pill in about equal proportions.) Additionally, these authors reported that regular church attendance is negatively associated with the use of birth control for White adolescents, and negatively associated with sexual activity for this group. For Black teenagers, frequency of church attendance was positively related to contraceptive use, and negatively associated with sexual activity. In summary, adolescents who are a member of a fundamentalist sect, especially if they are White and/or are highly religious, may have internal barriers toward the use of contraception. If contraception is used by such adolescents, it may be ineffectively used. It is to be noted that no research has definitively compared the influence of religion or religious activity differentially upon sexually active and non-sexually active teenagers.

Age is also an important variable in determining the use and efficiency of birth control methods. Compared to the younger adolescent, the



older adolescent is more likely to use contraception and more likely to have access to the more effective medical methods of contraception (Zelnik & Kantner, 1977). In addition, age plays an important part in knowledge about contraceptives. In initial questioning about effective knowledge of contraceptive methods, older females knew significantly more than younger ones (Evans et al., 1976). To summarize, not only are older adolescents more likely to have contraceptives available, to use them, and to use them effectively, but they are also more knowledgeable about contraception use.

Another important demographic variable in determining the use and effectiveness of contraception is the adolescent's geographic area of residence. Region of residence influences the tendency to seek contraceptive assistance. Adolescents in the South and the West made a significantly larger number of visits to family planning clinics than did those in the Northeast and Northcentral areas of the country. Also, the particular area of residence in a region plays an important role in use of contraceptives and type of contraceptive used. Kantner and Zelnik (1973) found that rural adolescents used contraception proportionally less than their urban counterparts. They also found that in central cities where most Blacks live (and where sexual activity is highest), most recent use of contraception is lowest. However, central city residents that do use contraception tend to use a more effective method such as the pill. In summary, geographic area of residence affects both use and type of contraception used.

The fourth demographic variable playing a part in contraceptive use is ethnic status. Studies in the literature focus upon Black/White (i.e., non-Black) differences and do not appear to control for socioeconomic

status (SES). Ethnic status accounts for the largest and most persistent differences found in adolescent sexual experience, with Black teenagers having twice as much experience as Whites (Kantner & Zelnik, 1973). Unfortunately, this higher level of sexual activity is not accompanied by a higher level of contraceptive use or efficiency in use. Data from the National Center of Health Statistics (1976) report that Black teenagers have eight times as many illegitimate births as White teens; this is probably an underestimation. Zelnik and Kantner (1979) found that Black adolescents were more likely to have reservations about contraception and, therefore, to not use contraceptives. This is supported by the finding that Blacks are more likely to be sexually experienced and never use contraception (Zelnik & Kantner, 1978). Additionally, the contraceptive method, most specifically use of the pill, also tends to differ by ethnic status. Birth control pills are considered the best method by both Black and White teenagers. However, Black teenagers use oral contraceptives at younger ages than White teens; at older ages they do not use them to the same extent as Whites do (Kantner & Zelnik, 1973). Sources of contraceptives also differed for Black and White teenagers, with Black teenagers utilizing clinics more often and White teenagers tending to rely mostly on private physicians. Both sources most commonly prescribed the pill, but tended to prescribe the pill more often for their White patients (80%) than for their Black patients (55%) (Kantner & Zelnik, 1973). In summary, Black-vs-White ethnic status is related to the likelihood of using contraceptives, especially oral contraceptives. Additionally, there is differential prescribing of the pill to adolescents by ethnic status. However, it must be acknowledged that for these data it is impossible to sort out SES effects from those of ethnic effects.

The final demographic variable influencing contraception is the SES (family income, education of parents) of the adolescent. Kantner and Zelnik (1973) found that higher SES levels are associated with both use of contraception and more consistent use of contraceptives. Their findings are as follows: the type of contraceptives used differs by income level and by ethnic status (Black-vs-White). For Black females, lower income level adolescents are more likely to use a medical method such as the pill than are middle income level adolescents. For White females, higher income level adolescents are more likely to choose effective methods and use them more often than are lower income level adolescents. Upper income level adolescents of both races take fewer unprotected risks. In addition to income level, parental educational level influences contraceptive use. The higher the level of parental education, particularly that of the mother/female guardian, the more likely the adolescent is to use contraception. This relationship is true for both Whites and Blacks, but appears to be stronger for White adolescents. The variable of female parent's educational level, combined with the variable of adolescent educational aspirations, are related to the consistency of the contraceptive use. Higher values for these two variables are related to a higher percentage of teens that use contraception in a consistent fashion. In summary, SES, as measured by family income or by parental education, is related to effective contraceptive use.

Each of these demographic variables impacts upon the teenager's use of contraceptives: influencing the decision to use contraception, the type of birth control method chosen, and the consistency of use. As is the case for the adolescent, the adult woman's effectiveness rates are influenced by such demographic variables as religious factors, area of

residence, ethnic status, and SES. However, these variables have a much smaller impact on adult contraceptive efficiency. Additionally, these variables seem to be losing their influence on older women as effective contraceptives are being used more widely as the years pass (Westoff, 1972). Summarizing, the interaction between age and the other demographic variables produces an important influence on the adolescent's success with effective contraceptives.

Another general area of variables that affects adolescent contraceptive use involves information about effective use of contraception. As mentioned previously, most adolescents obtain information about contraception from less than authoritative sources, their peers and the mass media, resulting in a great amount of misinformation about correct contraceptive use. Many teenagers are severely lacking in information about birth control methods. Furstenburg et al. (1969) found that although most teens knew something about birth control, few knew a great deal and most felt their knowledge about contraceptives was inadequate. Since efficient use of contraceptives requires information about how to correctly use the contraceptive, any increase in knowledge should improve adolescent contraceptive effectiveness. Reichelt & Werley (1975) found that a single informal rap session improved knowledge substantially. Thus it would appear that sex education classes might be a promising method of providing birth control information to adolescents. This method seems to be approved by many adults. Blake (1973) found that most Americans feel that adolescents should have information about contraception and do not object to sex education classes in high school providing this information. In response to this public attitude, there has been an increase in the number of adolescents who have had some form of sex education. By

1976, 69 percent of all 15- to 19-year old, unmarried females had received some form of sex education instruction, mostly in a school setting. Seventy-three percent of those enrolled in sex education classes had instruction in modern contraceptives (Zelnik, 1979). However, when a comparison of amount of knowledge about sexual information was made between female teens enrolled and those not enrolled in a sex education class, those enrolled were more knowledgeable, but the differences were not great. In summary, sex education classes may not be the best mechanism for transfer of contraceptive knowledge. The majority of adolescents are receiving sex education and contraceptive failure rates are still soaring.

The third and final general area of variables potentially influencing adolescent contraceptive practices encompasses those variables assumed to be related to differential motivation to use contraception such as marriage plans, amount and frequency of sexual experience, and prior pregnancy. These variables influence contraceptive effectiveness as demonstrated by both consistency of usage and type of contraception chosen. For example, consider the variable of marriage plans. Especially for Blacks, such plans are negatively related to consistent use of contraception; more specifically, Black teenagers with plans for marriage show a marked association with attempts to become pregnant (Shah, Zelnik & Kantner, 1975). To summarize, marriage plans, especially for Black adolescents, seem to reduce motivation to consistently use contraception.

Another motivational variable that influences teenage contraception is amount and frequency of sexual experience. Adolescent intercourse is usually sporadic and unplanned, often producing a dependence on the "safe time of the month" or a reliance on condoms as methods of contraception

(Arnold & Hoffman, 1974). The amount of sexual experience prior to choosing a birth control method influences the method chosen (Zelnik & Kantner, 1977). Females with some sexual experience are more likely to select the more effective methods, independent of the chronological age of the adolescent. Additionally, as frequency of sexual intercourse increases, oral contraceptive use also increases and condom use decreases. When frequency of intercourse is six or more times a month, pill use is most marked and most consistent (Kantner & Zelnik, 1973). Summarizing, increased frequency of sexual relations is related to use of more effective contraceptives and more consistent usage.

The third motivational variable affecting type and consistency of contraceptive usage is prior experience of pregnancy. After pregnancy, adolescents tend to adopt the most effective methods of birth control. Klein (1974) found that only 13 percent of pregnant adolescents had used contraception before pregnancy and only 1.6 percent of these had used the contraceptives consistently. Most often, sporadic use of condoms was the birth control method employed. Jorgensen (1973) discovered that adolescent females were most receptive to "family planning" (usually adopting a medical method) immediately after the birth of their first child. A high proportion of the sample had not previously used contraception. In a study by Zelnik and Kantner (1978) of pregnant adolescents, 71.8 percent used contraception after their infant's birth and 83.0 percent of these used a medical method. Only 16.2 percent were still sexually active and not using any form of birth control. Evans et al. (1976) found that pregnancy per se, whether ending in birth or in abortion, was sufficient motivation to encourage more consistent use of an effective method. At a six-month followup of adolescents that either had an

abortion or carried their child to term, 95 percent practiced birth control and 80 percent were using the pill or IUD consistently. In comparison, only 59 percent of adolescents who received negative results from a pregnancy test used contraception, with only 20 percent of these using the pill or the IUD. The group who were not pregnant did not appear motivated to change their previous contraception habits. When questioned, the majority of this group believed that since they had not become pregnant before, they did not need to currently protect themselves from pregnancy. In summary, these results suggest that an unplanned pregnancy provides sufficient motivation to use contraceptives and to use them effectively.

It would appear that any factor which increases the adolescent's motivation to avoid pregnancy also increases her desire to use contraceptives more effectively. Of the motivational variables discussed in this section, previous unplanned pregnancy would appear to be the most influential in encouraging consistent, effective contraception for adolescents.

Many factors influence the adolescent's ineffective use of contraceptives, including inefficient use of birth control pills. A number of these variables--religion, age, geographic location, ethnic status, and SES--are difficult to pragmatically manipulate but must be controlled for in research. The influence of these variables will be examined in the present study. Other variables influencing the teen's ineffective use of birth control pills are information about birth control pills, marriage plans, and previous sexual experience. These will be assessed in the present study in the following manner: (1) the source of the adolescent's knowledge about birth control pills will be assessed by 15 general

information questions, and (2) information about the existence of previous sexual experience will be obtained. The variable of prior pregnancy will be the independent variable in the present study.

Of all the categories of variables presented in this review, motivational variables would appear to be a fruitful area for both programs and experimental research. Not only is motivational level a very important determinant of success in contraception but it is a manipulatable variable. There is some indication in the literature that altering motivational factors influences the contraceptive practices of adult women. Motivational variables, such as number of children wanted and employment status, have been shown to be related to contraceptive effectiveness in adult women (Cutright & Groeneveld, 1978). Motivational factors influence contraceptive effectiveness in a positive manner: motivated females tend to use their contraceptives correctly, thus effectively. Among other tactics, motivated females may pay better attention to directions for correct use and follow these directions more closely than do unmotivated women. In oral contraceptives these directions for correct use may be provided by the prescribing physician, but they are always provided with each package of birth control pills the woman obtains. It is likely that women who are motivated to use birth control pills effectively will have better comprehension of the material covered in the insert.

As required by law, a printed insert has accompanied each package of birth control pills since 1970. These inserts are periodically updated, with the last major revision occurring in 1977. This small insert contains information pertaining to such topics as directions for correct use, contraindications, side effects, and adverse reactions. The directions



for correct usage section is concerned with when to initiate taking the pills, how to take them effectively, and what to do if pills are skipped or missed. This section is most directly related to effectiveness of contraceptive use; however, motivation for effective contraception is likely to affect comprehension of all sections of the insert. Previous studies have surveyed women's opinions of the insert. Mazis, Morris and Gordon (1978) found that 88 percent of adult pill users sampled had read an insert. The majority of these women felt that all sections, including the directions for correct usage section, were clearly written. Most felt the information presented was understandable, but wanted more details. When given a questionnaire to assess what information was retained from having read an insert, women consistently recalled the broad areas of "directions for correct usage" and "information about side effects." In this study, however, the subject's knowledge regarding specific details was not tested. Fleckenstein, Joubert, Lawrence, Patsner, Mazzullo and Lasagna (1976) requested subjects to recall more detailed information pertaining to knowledge about oral contraceptives. Knowledge about appropriate use of oral contraceptives was positively correlated with age, years of education, total family income, and oral contraceptive use, but not with having read an insert beforehand. Prior reading of an insert was positively correlated with general knowledge and knowledge about side effects. These two studies indicate that the insert is a useful source of information. However, neither of these studies controlled for differences in time since reading the insert or controlled for which specific insert was read.

A study by Green, Weber and Krieter (Note 1) controlled for these factors. This study examined the relationship of comprehension of the pill package insert to the variables of gender and of experience using or being intimate with someone using the pill. College age subjects were asked to read a specific pill insert and then asked to answer a questionnaire. This questionnaire contained 30 questions on facts discussed in the insert, measuring comprehension of information contained in the insert, and 15 "general" questions based on widely known information about women's sexuality and birth control pills. Three measures were obtained: (1) a total score, (2) a general information score, and (3) an insert comprehension score. For all three measures significant gender differences were found. As expected, females scored higher than males in all areas examined. Significant differences due to previous experience with the pill were found for only one measure, the insert comprehension score. Naive subjects scored significantly higher than those with previous experience with the pill. These results indicated that: (1) compared to males, females exhibited better comprehension of specific insert information and better knowledge of general information, and (2) both males and females with no previous experience with the pill exhibited better comprehension of specific insert information.

The second finding can possibly be explained by motivational differences between the experienced and inexperienced subjects. Naive subjects have higher motivation to pay closer attention to insert content because it is new information for them. In contrast, subjects with prior experiences have presumably had exposure to an insert and therefore lack high motivation to pay close attention to the specific insert presented.

In another study, Green et al. (Note 1) examined psychological factors affecting the efficiency of taking birth control pills. College age female students answered questions pertaining to opinions and past experience in several areas connected to taking birth control pills (memory/forgetting, knowledge/preference of pills and pill packaging, and source of information about the pill). Additionally, these subjects provided demographic data. The results of this study were as follows: Most of these women were taking birth control pills, the majority taking them to prevent pregnancy. They were quite knowledgeable when it came to many aspects of their pills such as what to do if a pill is forgotten, side effects, etc. However, these same subjects were unaware of the dosage level of their birth control pills, although they had been taking pills an average of more than five years. Though these women were having some problems remembering their birth control pills and they tended to be less than satisfied with their physician's explanation of birth control pills and pill packaging/insert, they did not feel changing the packaging or the insert would help their memory. The answers to this questionnaire provide important information about variables that have been previously discussed.

The proposed study is a replication of the Green, Weber and Krier studies and an extension to an adolescent female population. One aspect of this study will be to replicate findings pertaining to the variable of opinions about experience with birth control pills in an adolescent population. Another aspect of the study will be to examine the relationship of comprehension of the insert to one aspect of possible motivation, having been pregnant. Previous research indicates that prior pregnancy is a motivational variable related to the choice of a more effective contraceptive

in adolescents. The Green et al. study indicated a relationship between higher motivation and comprehension of the insert. The proposed study will attempt to explore a possible relationship between motivation measured by prior pregnancy and comprehension of instructions for use of oral contraceptives. It is assumed that previously pregnant teenagers, with the highest motivation to take the pill correctly, will have greater comprehension of the information in the insert than those teens who have less motivation (those who have not been pregnant).

In the present study, three groups of teenagers with assumed different levels of motivation will be examined: (1) high motivation group--adolescents with previous experience with pregnancy, (2) middle motivation group--adolescents seeking a method of contraception, and (3) low motivation group--adolescents in a sex education class not seeking a method of contraception. One-half of the subjects in each group will have experience with birth control pills, one-half will not.

#### Hypotheses: Regarding Comprehension

Given the assumption that motivation (as measured by previous experience with the pill or unplanned pregnancy) affects comprehension of the insert, it is hypothesized that:

1. Adolescents with previous experience with pregnancy (the highest motivated) will score highest on comprehension of the insert. Of these, those who have never previously used birth control pills will score highest of all.

2. Those seeking contraception will score higher than those in a sex education class.

3. Those who have had a class in sex education will score higher on 15 general information questions than those without sex education.

4. Those having birth control pill experience will do less well than their inexperienced counterparts.

Hypotheses: Regarding the Insert  
and Certain Variables

Given that certain demographic and other types of variables influence teenage contraception and pregnancy, it is hypothesized that age, religious sect, religious activity, ethnic status, sexual experience, and SES will be related to comprehension of the insert. Additionally, background information and opinions will be gathered in one questionnaire. Descriptive statistics and the relationship ( $r$ ) among the variables obtained will be examined.

## CHAPTER III

### METHOD

#### Subjects

Seventy-two adolescent females ranging in age from 14 to 19 years served as subjects. All were residents of Arkansas, a state which has the second highest rate of teenage pregnancy in the nation. The subjects were recruited through the following agencies: (1) the Arkansas Department of Health, Jefferson and Pulaski County divisions, and (2) the Pine Bluff Public High School. The 72 subjects were divided into groups as follows: 30 were subjects who had never been pregnant and who were enrolled in a high school class where sex education had been taught, 19 were subjects who had never been pregnant and were seeking contraceptives from family planning clinics, and 23 were subjects who had previous experience with a pregnancy, terminating in either a live birth or an abortion. Approximately half of each subject group had previous experience taking birth control pills, half did not. The clinic directors and teachers agreed to cooperate in the study. Consent from the Health Department was obtained prior to initiation of experimentation.

#### Materials

Materials consisted of two questionnaires, one of which (Psychological Survey) investigated psychological factors affecting the efficiency with which birth control pills are taken. The other (Survey of

Information) investigated comprehension of the pill package insert. The first, the Psychological Survey, included the following groupings of questions: (1) demographic, (2) memory and memory devices for consumption, (3) circumstances surrounding forgetting, (4) knowledge and preference surrounding pills and packaging of the subject's specific prescribed pills, and (5) source of knowledge about side effects and procedures for taking the pills. This questionnaire was designed collectively by four individuals. After two drafts, it was pretested using a group of graduate students involved in research. The questionnaire was altered in accordance with feedback from this group and the results of the pretest. The Psychological Survey was then administered to an upper division, undergraduate Psychology of Women class and to women in a small, midwestern community. (Refer to Green et al. [Note 1] for a summary of these results.) The present questionnaire included additional questions. These were: information about previous pregnancy, pregnancy outcome, if single whether engaged, and cognitive level of functioning. Two Piagetian word problems were used as a rough estimate of the subject's ability to use Formal Operational thinking. A more elaborate intelligence test was not practical due to time limitations. Refer to Appendix A for a copy of the Psychological Survey.

The second questionnaire, the Survey of Information, consisted of 45 questions pertaining to information about women and birth control pills. (Thirty questions involve information taken directly from an insert and fifteen questions are about "general" information from another source.) This questionnaire was designed by the same individuals who designed the Psychological Survey. First, Norlestrin (28 day), the most comprehensive insert of those available on the market was selected. Thirty multiple

choice/true-false questions were devised pertaining to information contained in the insert. An additional fifteen questions were taken from the standard brochure of information that is provided with initial prescriptions of birth control pills. The survey was pretested on a group of graduate students involved in research. The Survey of Information was then administered to Introductory (first and second level) Psychology students after the students had read the insert. Refer to Appendix B for a copy of the insert and the Survey of Information.

### Procedures

All subjects were asked to complete both questionnaires. In group testing situations, the experimenter was introduced and then explained the purpose of the study. The subjects were first given verbal instructions and then given a copy of the insert to read. (Refer to Appendix C for a copy of the instructions.) When subjects had finished reading, they were asked to complete the Survey of Information. Subjects were then asked to complete the Psychological Survey. Those subjects who did not have experience with the pill were asked to fill out the Psychological Survey as if they were the "average woman" taking birth control pills. When all subjects in the group were finished, they were given written feedback, and the experimenter answered all questions. Additionally, the name and address of the experimenter was provided so that subjects could write for answers to any further questions. (Refer to Appendix D for the feedback handout.)

In situations where group administration was not possible, the experimenter (or, in a few instances, an associate) administered the two questionnaires on an individual basis. The same procedure outlined above was followed.



## CHAPTER IV

### RESULTS

For purposes of comparison to other research samples, a description of the subjects based on selected demographic variables is provided in Table I. For description of one demographic variable, Formal Operational Thinking, by group, refer to Table II. In order to assess any possible differences in groups due to sampling error, a multiple analysis of variance (MANOVA) was performed on these demographic variables. The MANOVA did not yield significance. The three groups did not differ significantly on the demographic characteristics. These demographic variables, as well as the variable of Formal Operational Thinking, were not related to the dependent variables of Total Score, Insert Scale Score, Directions for Use Scale Score, and General Information Scale Score. Although not formally assessed, the percentage of subjects in different ethnic status categories appeared to the experimenter to be similar for all groups (approximately two-thirds Black, one-third White).

#### Analyses Pertaining to Hypotheses

##### Regarding Comprehension

Hypotheses I, II, III, and IV focused upon the dependent variables of Total Score, Insert Scale Score, Directions for Use Scale Score, and General Information Scale Score found in the Survey of Information questionnaire. Refer to Table III for a summary of means and standard deviations for these variables by group. The General Linear Model (GLM)

TABLE I  
 MEANS AND STANDARD DEVIATIONS FOR ALL DEMOGRAPHIC  
 VARIABLES FOR THE TOTAL SAMPLE

Variable	Code	Mean/Standard Deviation
Age	Years	17.35/1.07
Parents Aware of Pill Taking	1=yes, 0=no	0.73/0.45
Marital Status	1=married, 0=unmarried	0.15/0.36
Single, But Engaged	1=yes, 0=no	0.65/0.48
Previous Pregnancy	1=yes, 0=no	0.32/0.47
How Pregnancy Ended	1=abortion (23%) 2=live birth (59%) 3=currently pregnant (18%)	1.96/0.65
Taking Pill to Prevent Pregnancy	1=yes, 0=no	0.94/0.23
Taking Pill--Medical Reasons	1=yes, 0=no	0.09/0.29
Level of Education--Household Head	1=grammar school through 8th grade 2=high school 3=some college/business school 4=college graduate 5=professional or post-graduate degree	2.54/1.23
Level of Education--Subject's Family Income	(same as above) 1=less than \$9,999 2=\$10,000-\$19,999 3=\$20,000-\$35,999 4=\$36,000-\$59,999 5=\$60,000 and above	1.86/0.47 2.04/1.06
Religion Prohibits Contraception	1=yes, 0=no	0.15/0.36
Cognitive Level of Functioning	Number correct (0-2)	1.69/0.70
Money Problem	0=one dollar, 1=two dollars	0.40/0.49
Months Taking Pill	Months	8.44/13.36

TABLE II  
MEANS BY GROUP ON THE VARIABLE OF  
FORMAL OPERATIONAL THINKING  
(SCALE 0-2)

Pregnant	Contraception Seeking	Sex Education
1.57	1.65	1.57

TABLE III  
 MEANS AND STANDARD DEVIATIONS FOR THE DEPENDENT VARIABLES  
 OF TOTAL SCORE, INSERT SCALE SCORE, GENERAL SCALE  
 SCORE, AND DIRECTIONS FOR USE SCALE SCORE  
 ON THE SURVEY OF INFORMATION BY  
 GROUP AND EXPERIENCE LEVEL

	All Subjects	Group $\bar{X}/SD$	
		Experienced	Inexperienced
<u>Pregnancy</u>			
Total (45 Possible)	25.30/4.86	26.69/4.72	23.50/4.65
Insert (30 Possible)	17.22/4.15	18.00/4.08	16.20/4.21
General (15 Possible)	8.09/2.07	8.69/1.84	7.30/2.16
Directions (11 Possible)	6.04/1.49	6.46/1.20	5.50/1.72
<u>Contraception Seeking</u>			
Total (45 Possible)	25.05/4.72	25.67/2.77	24.00/7.12
Insert (30 Possible)	17.58/3.66	18.00/2.34	16.86/5.40
General (15 Possible)	7.47/2.44	7.67/2.50	7.14/2.48
Directions (11 Possible)	6.05/1.22	6.25/1.22	5.71/1.25
<u>Sex Education</u>			
Total (45 Possible)	28.10/3.40	29.14/4.30	27.78/3.12
Insert (30 Possible)	16.86/5.40	20.23/3.20	20.30/3.10
General (15 Possible)	7.87/1.83	9.14/1.86	7.48/1.68
Directions (11 Possible)	6.47/1.36	6.86/0.90	6.35/1.47

procedure was used to analyze the data because of unequal sample sizes in the groups. For this model, it is assumed that samples are unequal because they reflect populations that are unequal.

#### Hypotheses I and II

Two factor, 2 (experience) X 3 (group) analyses of variance (ANOVAs) yielded significant main effects for Group on two dependent variables: the Total Score and the Insert Scale Score. No significant interactions were found. Refer to Table IV for a summary of the ANOVA for the variable of Total Score and to Table V for a summary of the ANOVA for the variable of Insert Scale Score. On the variable of Total Score,  $t$  tests revealed significant differences between the sex education group and the pregnant group ( $t$  [37.60] = -2.35,  $p < .05$ ;  $\bar{X}$  [sex education] = 28.10,  $\bar{X}$  [pregnant] = 25.30), and also between the sex education group and the contraception seeking group ( $t$  [29.80] = -2.44,  $p < .05$ ;  $\bar{X}$  [contraception] = 25.05). For the variable of Insert Scale Score,  $t$  tests again revealed significant differences between the sex education and pregnant groups ( $t$  [40.30] = -2.89,  $p < .01$ ;  $\bar{X}$  [sex education] = 20.23,  $\bar{X}$  [pregnant] = 17.22). Significant differences were also shown between the sex education and contraception seeking groups ( $t$  [34.70] = -2.596,  $p < .05$ ;  $\bar{X}$  [contraception] = 17.58) on this variable. The pregnant group and the contraception seeking group did not differ from each other. Hypotheses I and II were not supported. Adolescents who had been pregnant and those who sought contraceptives were not more motivated to comprehend the insert. In fact, the opposite occurred. Compared to the other two groups, subjects who were in a sex education class scored higher on the total score as well as on the insert comprehension questions.

TABLE IV

ANALYSIS OF VARIANCE--WITH GROUP MEMBERSHIP AND PREVIOUS  
EXPERIENCE WITH BIRTH CONTROL PILLS AS THE FACTORS  
AND TOTAL CORRECT ON THE SURVEY OF INFORMATION  
AS THE DEPENDENT VARIABLE

Source	DF	Mean Square	F Ratio
Group	2	103.45	5.81***
Experience	1	69.81	3.89
Interaction	2	5.25	0.30
Error	66	17.80	
Total	71		

\*\*\*p < .005.

TABLE V

ANALYSIS OF VARIANCE--WITH GROUP MEMBERSHIP AND PREVIOUS  
EXPERIENCE WITH BIRTH CONTROL PILLS AS THE FACTORS  
AND NUMBER CORRECT ON THE INSERT SCALE OF THE  
SURVEY OF INFORMATION AS THE  
DEPENDENT VARIABLE

Source	DF	Mean Square	F Ratio
Group	2	77.35	5.73**
Experience	1	11.97	0.89
Interaction	2	6.31	0.47
Error	66	13.51	
Total	71		

\*\*p < .01.

### Hypothesis III

A two factor, 2 (experience) X 3 (group), ANOVA for the dependent variable of General Information Scale Score revealed a significant main effect for Experience ( $F [1,66] = 5.77, p < .05$ ). Refer to Table VI for a summary of the ANOVA.  $T$  tests revealed significant differences on this dimension ( $t [62.7] = -2.13, p < .05; \bar{X} [\text{experience}] = 8.41, \bar{X} [\text{in-experience}] = 7.38$ ). Experienced subjects have more general knowledge about birth control pills than do their inexperienced counterparts. Hypothesis III was not supported. Adolescents in sex education did not score highest on the General Information Scale. Experienced subjects in all groups scored higher than inexperienced subjects.

### Hypothesis IV

The two factor, 2X3, ANOVAs previously reported assessed main effects for the factor of experience. The analysis of only one dependent variable, General Information, revealed a significant main effect ( $F [1,66] = 5.77, p < .05$ ). Hypothesis IV was not supported. Adolescents who are experienced in the use of birth control pills do not score higher on any of the scales on the Survey of Information. In fact, where there is a difference in scores on this dimension, experienced subjects scored higher.

### Hypothesis Pertaining to the Psychological Survey

The Psychological Survey contained 47 ordered variables. Refer to Table VII for means and standard deviations for all of these variables. (Since the Psychological Survey assessed experience with taking pills,

TABLE VI

ANALYSIS OF VARIANCE--WITH GROUP MEMBERSHIP AND PREVIOUS  
EXPERIENCE WITH BIRTH CONTROL PILLS AS THE FACTORS  
AND NUMBER CORRECT ON THE GENERAL INFORMATION  
SCALE OF THE SURVEY OF INFORMATION  
AS THE DEPENDENT VARIABLE

Source	DF	Mean Square	F Ratio
Group	2	4.37	1.06
Experience	1	11.84	5.77*
Interaction	2	4.43	0.41
Error	66	4.11	
Total	71		

\*p .05.



TABLE VII  
 MEANS AND STANDARD DEVIATIONS OF SURVEY VARIABLES  
 FOR THE EXPERIENCED SUBJECTS

Variable	Code	Mean/Standard Deviation
Dose Level	1=knows, 0=does not know	0.10/0.30
Cost	Amount	\$5.11/\$2.60
Knows Cost	1=yes, 0=no	0.23/0.43
Uses 21 Day Pills	1=yes, 0=no	0.26/0.45
Uses 28 Day Pills	1=yes, 0=no	0.74/0.49
Other Pills With B.C. Pills	1=yes, 0=no	0.12/0.33
Knows Color of Package	1=yes, 0=no	0.90/0.31
Knows Color of Pills	1=yes, 0=no	0.98/0.14
Day Start First Pill	1=Sunday 2=Monday 3=Tuesday 4=Wednesday 5=Thursday 6=Friday 7=Saturday	2.00/1.64
Uses Calendar Assistance	1=yes, 0=no	0.40/0.49
Assisted by Someone Else	1=yes, 0=no	0.13/0.34
Keeps Pills in Specific Place	1=yes, 0=no	0.89/0.32
If Forget:	1=yes, 0=no or did not check	
Alternative Birth Control		0.06/0.24
One More Pill		0.52/0.50
New Cycle B.C. Pills		0.06/0.24
Same Schedule		0.21/0.41
Forget--Emotional Reaction:	1=yes, 0=no or did not check	
Frustrated		0.25/0.44
Sad		0.08/0.27
Unconcerned		0.12/0.32
Depressed		0.14/0.35
Angry		0.12/0.32
Fearful		0.33/0.47
Anxious		0.06/0.24
Happy		0.06/0.24
Embarrassed		0.08/0.27
Guilty		0.14/0.35
Panicked		0.27/0.45
Other		0.10/0.30
Other Medication Regularly	1=yes, 0=no	0.09/0.29
Other Medication Assists	1=yes, 0=no	0.41/0.50
Other Medication Interferes	1=yes, 0=no	0.11/0.32
Trouble Remembering	1=yes, 0=no	0.10/0.30
Forgetful Month--Days Forgot	Number Listed (9=9 or more)	1.31/1.05
Typical Month--Days Forget	Number Listed (9=9 or more)	0.67/0.95

TABLE VII (Continued)

Variable	Code	Mean/Standard Deviation
Packaging Attractive	1=Very Attractive 2=Attractive 3=No Opinion 4=Unattractive 5=Very Unattractive	2.74/0.88
Packaging Convenient	1=Very Convenient 2=Convenient 3=No Opinion 4=Inconvenient 5=Very Inconvenient	2.08/0.81
Packaging Helpful	1=Very Helpful 2=Helpful 3=No Opinion 4=Unhelpful 5=Very Unhelpful	0.88/0.33
Forget Pills--Insert Helps	1=Very Helpful 2=Helpful 3=No Opinion 4=Unhelpful 5=Very Unhelpful	2.29/0.98
Read Insert	1=yes, 0=no	0.88/0.33
Physician Explained:	1 2 3 4 5	
Side Effects	Very	1.94/1.19
How to Take Pills	Well	1.57/0.95
Forgotten Pills		1.68/1.16
Possible Problems		1.68/1.27
Knows Side Effects	Number Listed (1-3)	1.21/1.01
To Remember Would You:	1=yes, 0=no	
Change Package		0.11/0.32
Change Insert		0.05/0.22
B.C. Pill--Good Family Planning Method for You	1=Very Good 2=Good 3=Fair 4=Poor 5=Very Poor	1.77/1.02

only data from experienced subjects were used in the following analyses). Pearson Product Moment Correlations were utilized to assess the relationship among these variables. Refer to Table VIII for a copy of the correlation matrix. Though some variables were related, these relationships were logical and not unexpected. For example, the thoroughness with which a woman's physician explained side effects of the pill was related to the thoroughness in which he/she explained how to take the pill, forgotten pills, and possible problems with the pills. In order to assess whether the three groups differed on any of these variables, a MANOVA was attempted. (A MANOVA provides protection from increasing the Type I error rate when examining a large number of variables separately.) Because of missing data (subjects were allowed discretion in answering questions), the analysis could not be performed. Keeping this in consideration, ANOVAs were then utilized. The ANOVA for only one variable, insert understandability, yielded significant main effects for Group ( $F [2,25] = 4.77, p < .02$ ).  $T$  tests revealed significant differences between the sex education and the pregnant groups ( $t [27] = -2.55, p < .02$ ) and between the sex education group and the contraception seeking group ( $t [34.9] = -2.54, p < .02$ ). The sex education group felt the insert was less understandable than the pregnant and contraception seeking groups. There was no difference between the latter two groups.

TABLE VIII  
SIGNIFICANT CORRELATIONS AMONG THE ORDERED VARIABLES  
IN THE PSYCHOLOGICAL SURVEY

V <sub>1</sub>	V <sub>2</sub>	r
2	19	-.620*
2	34	-.742*
2	45	-.705*
7	14	-.565**
16	32	.575****
17	30	.686***
22	23	.646****
24	25	.732****
28	29	.652***
39	46	.552***
40	41	.728****
40	42	.662****
40	43	.788****
41	42	.760****
41	43	.639****
42	43	.587****

\*p < .05.

\*\*p < .01.

\*\*\*p < .005.

\*\*\*\*p < .001.

Key: Variable Number and Description

2	Cost of pills	29	Other medication assists
7	Knows color of pills	30	Other medication interferes
14	If forget pills, start new cycle	32	Number of pills forgotten-- worst month
	Reaction to forgotten pills:	34	Number of pills forgotten-- typical month
16	Frustrated	39	Instructions understandable
17	Sad		Satisfaction with physician's explanation of:
19	Depressed	40	Side effects
22	Anxious	41	How to take pills
23	Happy	42	Forgotten pills
24	Embarrassed	43	Possible problems
25	Guilty		
28	Takes other medication		

## CHAPTER V

### DISCUSSION

The insert which accompanies birth control pills is an important source of information. Many physicians do not provide their female patients with sufficiently detailed nor clear enough information regarding birth control pills. The Green et al. (Note 1) study, where subjects were college age (20 to 40 years) and female, found among these women dissatisfaction with their physician's explanation concerning birth control pills. Some dissatisfaction, although not nearly as much, was found in the present adolescent sample. If physicians do not adequately provide the needed information, comprehension of the insert is an important issue. The present study indicates that one such insert is not easily comprehended by adolescents. This finding is similar to that of Green et al. (Note 1) for college women.

All three groups of adolescents scored poorly on the measures of comprehension. For the measure of insert comprehension, all three adolescent groups scored poorly. The sex education group did best with an average of 20, or 67 percent correct. The college sample was superior, averaging 24, or 80 percent correct. Likewise, on the measure of general information, the college age population had a better average, 9 or 60 percent, than did the adolescent population, 6 or 40 percent. If only looking at experienced adolescent subjects on this last measure, the average is higher, 8 or 53 percent, but still not on a par with the college sample.

What possible mechanism is responsible for the differences found between these two populations in their comprehension of the insert? The two samples differed on selected demographic variables measured. There is the possibility that such variability may be related to the differences seen in comprehension scores. The college age sample was, on the average, 11 years older than the adolescents; they also had an average of 56.5 months more experience using birth control pills.

Results from the Psychological Survey provide additional relevant information. Consistent with their higher level of experience, the college group could recall more side effects of the pill. Surprisingly, even with the superior experience with pills, the older group still did not know the dosage level of their pills; neither did the adolescent group.

In light of these results showing low rates of comprehension for both groups, especially the adolescent group, the fact is obvious that this insert is not doing a thorough job of providing information. (How understandable other inserts available on the market are is unknown at present. Perhaps future studies will compare the comprehension of different groups on these inserts. However, it is likely the comprehensibility of the other inserts will be even lower since the most comprehensive insert available was chosen for the present study. Additionally, future studies might examine how the insert could be altered to facilitate comprehension.)

The present study examined comprehension of the insert that accompanies one brand of birth control pills. Hypotheses I and II, predicting that motivational level would have a positive effect on comprehension of the insert, were not supported. In fact, the opposite of the prediction

was discovered. The group assumed to be the lowest in motivation, the sex education group, was highest in their comprehension of the insert. The other two groups, thought to be the more highly motivated, did less well and also did not differ significantly from one another.

Higher motivational levels, whether measured by previous experience with pregnancy or by the seeking of contraception, did not produce higher comprehension of the insert as predicted. There are several possible explanations for these findings. One might attribute the differences found in scores on the dependent variables to differences in demographic characteristics among the three groups. These demographic variables have been shown to be important influences in adolescent contraceptive choice and effectiveness. Therefore, it would be logical to assume that they might influence insert comprehension. However, the three groups in this study did not differ on these critical demographic factors. Additionally, no relationships were found between the demographic and dependent variables. Thus, the differences found among the groups must be due to other factors.

A second possible explanation focuses upon motivation per se. An initial interpretation of the findings would be that motivation is not related to the ability to understand the insert. However, the hypotheses were based upon previous studies that focused upon the relationship between the teenager's motivational level and contraception usage (Evans et al., 1976; Jorgensen, 1973; Zelnik & Kantner, 1977). There may be some differences in the motivation to use contraceptives effectively and the motivation to understand the insert. While motivation has an impact on taking birth control pills, it may not have the same effect on insert comprehension. Perhaps the literature on contraceptive usage is not valuable in the prediction of studies focusing upon insert comprehension.

Nonetheless, it is likely that insert comprehension is related to contraceptive effectiveness.

If predictions of the level of motivation in the present study were based on incorrect criteria, a third possible explanation of these findings is that a different type of motivation is involved in insert comprehension. The present finding that subjects sampled in a school setting understand the insert more clearly than other subjects not in a school setting, might suggest that education is a factor in comprehension. Notably there were no significant differences in level of education attained between the three groups. Reading and comprehending the insert would appear to be related to something other than education, perhaps something that is involved in the specific educational or testing setting.

This raises an important question: what are the parameters of the educational and/or testing situation of the sex education group that might have provided more motivation? There is a possibility that because these subjects are actively involved in an educational setting, heightened learning skills are influencing the increased comprehension of the insert. As the educational setting could influence the results, so could the testing situation. Subjects in the other groups were tested individually with no other adult present. In contrast, the sex education subjects were tested as a group in their classroom. Not only were they in a group of their peers, but their teacher was also present. Both of these factors possibly produce pressure to perform well. The result of such pressure may be an increased involvement in reading the insert producing better comprehension of the material read.

Hypothesis III predicted that females involved in sex education would have more knowledge in the area of birth control and, therefore,



score higher on the scale concerned with general information about the pill. This was not supported by the present results. The three groups did not differ on this scale. However, significant differences were found for the independent variable, experience with birth control pills. Compared to inexperienced subjects, experienced subjects scored higher on the general information scale. This finding additionally counters the prediction of Hypothesis IV, which was based on the Green et al. (Note 1) finding that inexperienced subjects scored higher than their experienced counterparts (attributed to increased motivation to attend to new material).

Post hoc, these findings have face validity. Subjects experienced with birth control pills should have more general knowledge in this area than inexperienced subjects. Perhaps this contradiction of the earlier finding is due to differences in the ages of the samples. It may be that older, college student subjects are motivated by new material and attend best when inexperienced with the material. (Because of their age and educational level, they would also be likely to have absorbed general information in previous related reading.) In contrast, the adolescent subject retains more information if the topic is meaningful to them, in this case if they are taking birth control pills.

Recall that the sex education group did not perform differently from the other two groups when it came to comprehending general information about birth control pills. While it would seem that students involved in sex education would have more information in general than those not receiving instruction, this assumption was not supported. This finding, coupled with that of the sex education group being superior to the other groups on measures involving comprehension of material that was

presented to them, would seem to suggest the following: although the students do attend better to the insert in a classroom setting, the information given to them in classroom instruction is not effectively retained. An alternative is that birth control is not discussed in class. Thus, sex education classes would appear not to be maximally effective in providing information to teenagers. The present finding is supported by Zelnik (1979). Other avenues for communicating sexual information to teenagers need to be explored if teens are going to retain this information. Perhaps a more informal setting such as that of the rap sessions studied by Reichelt and Werley (1975) is more appropriate for the teenager's needs. At any rate, the results of the present study would support the assumption that some programming change in information provision is needed.

In summary, it appears there are a number of discrepancies between the literature and the present findings. However, these differences can be explained when the specific areas studied are examined. Previous studies explored the factors important in teenage contraceptive use and effectiveness. The present study examined the influence of these important factors upon insert comprehension. The findings indicate that a different type of motivation is working in insert comprehension. The setting in which both the insert is read and the comprehension is measured appears to have major influence upon the subject's comprehension level. This situational factor may be the only source of motivation. On the other hand, perhaps the motivation specific to the testing situation is sufficiently potent enough to negate that produced by other factors important to contraceptive use. Clearly, in a group setting, specifically an educational setting, where pressure to do well is present,

there seems to be high motivation to comprehend the insert. In retrospect, this finding seems quite plausible, even predictable. At this age, peer and teacher influences are very important to the adolescent. Additionally, motivation in an academic situation is not uncommon to the teenager.

The implications of these findings can be seen in the delineation of future research questions and design. These are as follows: (1) Would the other two groups of adolescents comprehend better if reading the insert in a group situation? A design involving both group and individual testing situations for all groups would answer this question. (2) Is more pressure than just a group situation necessary to increase comprehension? A design that compared group testing in different situations, one being a school setting, would provide an answer. If the group situation was not the key to the pressure to do well, other differences in the testing situations need to be explored, e.g., the difference unknown peers present-vs-friends present makes, familiar adult-vs-stranger present, etc. (3) Is this type of motivation applicable to other age groups or is it simply a phenomenon of the adolescent? To answer this question would necessitate repeating the study using an older, college age sample in the group-vs individual type testing situations and then comparing the results to those of the adolescents.

REFERENCE NOTE

1. Green, V., Weber, R., and Krieter, S., unpublished manuscript, 1981.

## REFERENCES

- Arnold, S., & Hoffman, A. Chicago planned parenthood's teen scene: A sociological study for participants. Adolescence, 1974, 9, 371-389.
- Blake, J. The teenage birth control dilemma and public opinion. Science, 1973, 180, 708-712.
- Cutright, P., & Groeneveld, L. P. Birth planning success: Motivation and contraception method. Family Planning Perspectives, 1978, 10, 43-48.
- Dryfoos, J. G., & Heisler, T. Contraceptive services for adolescents: An overview. Family Planning Perspectives, 1978, 10, 223-233.
- Evans, J. R., Selstad, G., & Welcher, W. H. Teenagers: Fertility control behavior and attitudes before and after abortion, childbearing or negative pregnancy test. Family Planning Perspectives, 1976, 8, 192-200.
- Fleckenstein, L., Joubert, P., Lawrence, R., Patsner, B., Mazzullo, J. M., & Lasagna, L. Oral contraceptive patient information: A questionnaire study of attitudes, knowledge, and preferred information sources. Journal of the American Medical Association, 1976, 235, 1331-1336.
- Furstenberg, F., Jr., Gordis, L., & Markowitz, M. Birth control knowledge and attitudes among unmarried pregnant adolescents: A preliminary report. Journal of Marriage and Family, 1969, 31, 34-42.
- Jaffe, F. S., & Dryfoos, J. G. Fertility control services for adolescents: Access and utilization. Family Planning Perspectives, 1976, 8, 167-175.
- Johnson, C. L. Attitudes toward premarital sex and family planning for single-never-pregnant teenage girls. Adolescence, 1974, 9, 255-263.
- Jorgensen, V. One-year contraceptive follow-up of adolescent patients. American Journal of Obstetric Gynecology, 1973, 115, 484-486.
- Kane, F. J., Lachenbruch, P. A., Lokey, L., Chafetz, N., Auman, R., Pocus, L., & Lipton, M. A. Motivational factors affecting contraceptive use. American Journal of Obstetric Gynecology, 1971, 110, 1050-1054.
- Kantner, J. F., & Zelnik, M. Contraception and pregnancy: Experience of young unmarried women in the United States. Family Planning Perspectives, 1973, 5, 21-35.

- Klein, L. Early teen-age pregnancy, contraception, and repeat pregnancy. American Journal of Obstetric Gynecology, 1974, 120, 249-256.
- Lane, M. Contraception for adolescents. Family Planning Perspectives, 1973, 5, 19-20.
- Mayberger, H. W., & Bell, B. Patient package inserts and oral contraceptives. Journal of Legal Medicine, 1977, 5, 14-17.
- Mazis, M., Morris, L. A., & Gordon, E. Patient attitudes about two forms of printed oral contraceptive information. Medical Care, 1978, 16, 1045-1054.
- Mendick, B., Oskamp, S., & Berger, D. Prediction of success or failure in birth planning: An approach to prevention of individual and family stress. American Journal of Community Psychology, 1977, 5, 447-459.
- National Center for Health Statistics DHEW. "Advance report: Final natality statistics, 1976," in Available contraception lowers teen birth rates. Family Planning Perspectives, 1978, 10, 160-161.
- Paul, E. W., & Pilpel, H. F. Teenagers and pregnancy: The law in 1979. Family Planning Perspectives, 1979, 11, 297-302.
- Paul, E. W., Pilpel, H. F., & Wechsler, N. F. Pregnancy, teenagers, and the law, 1976. Family Planning Perspectives, 1976, 8, 16-21.
- Reichelt, P. A., & Werley, H. H. Contraception, abortion, and venereal disease: Teenager's knowledge and the effect of education. Family Planning Perspectives, 1976, 7, 83-88.
- Scales, P. How to reduce teenage pregnancy. In testimony to the House Select Committee on Population, 1978.
- Shah, F., Zelnik, M., & Kantner, J. F. Unprotected intercourse among unwed teenagers. Family Planning Perspectives, 1975, 7, 39-44.
- Thornburg, H. D. A comparative study of sex information sources. Journal of School Health, 1972, 42, 88-91.
- Tschetter, P. Family planning and the private primary care physician. Family Planning Perspectives, 1978, 10, 350-353.
- Westoff, C. F. The modernization of U.S. contraceptive practice. Family Planning Perspectives, 1972, 4, 9-12.
- Zelnik, M. Sex education and knowledge of pregnancy risk among U.S. teenage women. Family Planning Perspectives, 1979, 11, 355-357.
- Zelnik, M., & Kantner, J. F. Sexual and contraceptive experience of young unmarried women in the United States, 1976 and 1971. Family Planning Perspectives, 1977, 9, 55-71.

Zelnic, M., & Kantner, J. F. Contraceptive patterns and premarital pregnancy among women aged 15-19 in 1976. Family Planning Perspectives, 1978, 10, 135-142.

Zelnic, M., & Kantner, J. F. Reasons for nonuse of contraception by sexually active women aged 15-19. Family Planning Perspectives, 1979, 11, 289-296.

APPENDIX A

PSYCHOLOGICAL SURVEY



## Birth Control Pills: A Survey

We are conducting this study to investigate certain factors important in taking birth control pills. It is important that you provide thoughtful and candid information, because this is the first study of its kind, and the results could prove helpful to women who will be taking birth control pills in the future. The survey is completely anonymous. If you have not had any experience with birth control pills, please answer the questionnaire as you think the average woman taking pills would answer.

## Demographic Data

1. Level of education of Head of your Household:
  - a. Post graduate degree, professional degree
  - b. College graduate
  - c. Some college, business school
  - d. High school graduate
  - e. Grammar school to and including 8th grade.
2. Level of your education (select highest level achieved):
  - a. Post graduate degree, professional degree
  - b. College graduate
  - c. Some college, business school
  - d. High school graduate
  - e. Grammar school to and including 8th grade.
3. To the best of your knowledge, what was your/your family's income in 1979?
  - a. Less than \$9,999
  - b. \$10,000 to \$19,999
  - c. \$20,000 to \$35,999
  - d. \$36,000 to \$59,999
  - e. \$60,000 and above.
4. Does your religion or your family's religion prohibit use of contraceptives?
  - a. Yes
  - b. No

Specify the religion \_\_\_\_\_

(Fill in the blank)

Please answer the following riddles:

1. Helen is taller than Mary and Mary is taller than Jane; who is the tallest of the three? \_\_\_\_\_
2. Jack is heavier than John and John is heavier than Peter; who is the heaviest of the three? \_\_\_\_\_
3. Which is better--to have one dollar today or two dollars next week?  
\_\_\_\_\_

Sex: Male \_\_\_\_\_ Female \_\_\_\_\_ Age \_\_\_\_\_

1. If you are under 18, do your parents know you are taking birth control pills?  
Yes \_\_\_ No \_\_\_
2. Have you ever been involved in a sexual relationship?  
Yes \_\_\_ No \_\_\_
3. Are you married?  
Yes \_\_\_ No \_\_\_  
Are you planning to be married (engaged)?  
Yes \_\_\_ No \_\_\_
4. Have you ever been pregnant?  
Yes \_\_\_ No \_\_\_  
If so, how did that pregnancy end?  
Abortion \_\_\_  
Live birth \_\_\_  
Other (specify) \_\_\_\_\_
5. Do you now, or have you previously, taken birth control pills?  
Yes \_\_\_ No \_\_\_
6. How long have you been taking the pill? \_\_\_\_\_
7. At the time you took birth control pills, the principal reason was (check one):  
To prevent pregnancy \_\_\_  
For medical reasons \_\_\_
8. What brand of birth control pill do you take? \_\_\_\_\_  
What is the dosage level of your birth control pills? \_\_\_\_\_
9. About how much do they cost a month? Amount \_\_\_\_\_  
Don't know \_\_\_
10. How many birth control pills do you take during your cycle? \_\_\_\_\_
11. Are there other pills that are packaged with the birth control pills that you take?  
Yes \_\_\_ No \_\_\_
12. What color are the birth control pills that you take? \_\_\_\_\_
13. What color is the package in which the birth control pills come?  
\_\_\_\_\_

14. On what day of the week do you take your first pill? \_\_\_\_\_
15. Do you use a calendar or other device to assist you in taking your pills?  
Yes \_\_\_ No \_\_\_ If so, what? \_\_\_\_\_
16. Does someone else assist you in remembering to take your birth control pills?  
Yes \_\_\_ No \_\_\_  
If so, who? \_\_\_\_\_ (relationship to you, not name)  
What is the nature of the assistance? \_\_\_\_\_
17. Do you keep your birth control pills in a specific place?  
Yes \_\_\_ No \_\_\_ If so, where? \_\_\_\_\_
18. If you have ever forgotten to take your birth control pills, did you (check any that apply)
- a. Use an alternate birth control method \_\_\_
  - b. Catch up on the days missed by taking more than one pill per day \_\_\_
  - c. Wait a period of time and start taking a new cycle of pills \_\_\_
  - d. Keep on taking the pills in the same package, one per day \_\_\_
- Explain:
19. If you have ever forgotten to take your birth control pills, what was your emotional reaction (check any that apply)?
- Frustrated \_\_\_
  - Sad \_\_\_
  - Unconcerned \_\_\_
  - Depressed \_\_\_
  - Angry \_\_\_
  - Fearful \_\_\_
  - Anxious \_\_\_
  - Happy \_\_\_
  - Embarrassed \_\_\_
  - Guilty \_\_\_
  - Panicked \_\_\_
  - List others \_\_\_\_\_
20. Do you take any other medication on a regular basis?  
Yes \_\_\_ No \_\_\_
21. If so, does this assist you or interfere with your remembering to take birth control pills?
- Assists: Yes \_\_\_ No \_\_\_
  - Interferes: Yes \_\_\_ No \_\_\_

22. What is the single most important factor in helping you remember to take your birth control pills? \_\_\_\_\_

23. Do you have trouble remembering to take your birth control pills?  
Yes \_\_\_ No \_\_\_ Explain: \_\_\_\_\_

24. In your most forgetful month, how many days did you forget to take your birth control pills (list number of days)? \_\_\_\_\_

25. In a typical month, how many days per month do you forget to take your birth control pills (list number of days)? \_\_\_\_\_

26. Do you think the packaging of your birth control pills is attractive (circle the number that applies)?

1	2	3	4	5
Very Attractive	Attractive	No Opinion	Unattractive	Very Unattractive

Explain:

27. Do you think the package that your pills come in is convenient for use (circle the number that applies)?

1	2	3	4	5
Very Convenient	Convenient	No Opinion	Inconvenient	Very Inconvenient

Explain:

28. Is the type of packaging helpful in assisting you to remember to take your birth control pills (circle the number that applies)?

1	2	3	4	5
Very Helpful	Helpful	No Opinion	Unhelpful	Very Unhelpful

29. Have you read all of the information packaged with your birth control pills?

Yes \_\_\_ No \_\_\_

30. When you forget to take your birth control pills, are the instructions packaged with the pills helpful (circle the number that applies)?

1	2	3	4	5
Very Helpful	Helpful	No Opinion	Unhelpful	Very Unhelpful

31. Are the instructions packaged with your birth control pills understandable (circle the number that applies)?

1	2	3	4	5
Very Understandable	Understandable	Fairly Understandable	Poorly Understandable	Very Poorly Understandable

32. How thoroughly did your physician explain the following (circle number)?

a. Possible side effects	1	2	3	4	5
b. How to take the pills	1	2	3	4	5
c. What to do when a pill is forgotten	1	2	3	4	5
d. Possible problems (miscellaneous)	1	2	3	4	5
	Very Well				Very Poorly

33. List several common side effects that are possible when taking birth control pills (although you may not have experienced these).

- a. \_\_\_\_\_  
 b. \_\_\_\_\_  
 c. \_\_\_\_\_

34. Is the birth control pill a good method of family planning for you (circle number)?

1	2	3	4	5
Very Good	Good	Fair	Poor	Very Poor

Explain: \_\_\_\_\_

35. How did you decide on the pill as a method of birth control?

Explain: \_\_\_\_\_

36. Why did you decide upon birth control pills as a method of contraception? Explain: \_\_\_\_\_

37. To assist you in remembering to take your birth control pills, would you:

- a. Change the package? Yes \_\_\_ No \_\_\_

Explain: \_\_\_\_\_

- b. Change the instructions? Yes \_\_\_ No \_\_\_

Explain: \_\_\_\_\_

APPENDIX B  
SURVEY OF INFORMATION

Cigarette smoking increases the risk of serious adverse effects on the heart and blood vessels from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should not smoke.

Oral contraceptives taken as directed as directed are about 99% effective in preventing pregnancy. (The mini-pill, however, is somewhat less effective.) Forgetting to take your pills increases the chance of pregnancy.

Women who have or have had clotting disorders, cancer of the breast or sex organs, unexplained vaginal bleeding, a stroke, heart attack, angina pectoris, or who suspect they may be pregnant should not use oral contraceptives.

Most side effects of the pill are not serious. The most common side effects are nausea, vomiting, bleeding between menstrual periods, weight gain, and breast tenderness. However, proper use of oral contraceptives requires that they be taken under your doctor's continuous supervision, because they can be associated with serious side effects which may be fatal. Fortunately, these occur very infrequently. The serious side effects are:

1. Blood clots in the legs, lungs, brain, heart or other organs and hemorrhage into the brain due to bursting of a blood vessel.
2. Liver tumors, which may rupture and cause severe bleeding.
3. Birth defects if the pill is taken while you are pregnant.
4. High blood pressure.
5. Gallbladder disease.

The symptoms associated with these serious side effects are discussed in the detailed leaflet given you with your supply of pills. Notify your doctor if you notice any unusual physical disturbance while taking the pill.

The estrogen in oral contraceptives has been found to cause breast cancer and other cancers in certain animals. These findings suggest that oral contraceptives may also cause cancer in humans. However, studies to date in women taking currently marketed oral con-

traceptives have not confirmed that oral contraceptives cause cancer in humans.

The detailed leaflet describes more completely the benefits and risks of oral contraceptives. It also provides information on other forms of contraception. Read it carefully. If you have any questions, consult your doctor.

**Caution.** Oral contraceptives are of no value in the prevention or treatment of venereal disease.

#### PETIPAC® TABLET DISPENSER

Each contains 21 pink tablets and 7 brown tablets. Each pink tablet contains norethindrone acetate, 2.5 mg; ethinyl estradiol, 50 mg. Each brown tablet contains 75 mg ferrous fumarate, USP.

Your Petipac tablet dispenser consists of the attractive outer case and a replaceable refill containing 28 tablets arranged in four rows of seven. The first three rows of pink tablets are Norlestrin. The seven brown tablets in the last row contain iron.

#### DIRECTIONS

1. The first day of your period is Day 1. On the fifth day (Day 5), start taking one pink tablet daily, beginning with the tablet in the upper left corner of the Petipac. In the space provided, write the day you start. Take all the tablets in the top row first, followed by the second row, and so on. To remove a tablet, press down on it with your thumb or finger. The tablet will drop through a hole in the bottom of the Petipac. Do not press on the tablet with your thumbnail or fingernail, or any other sharp object.

If your period begins on	Start taking tablets on
Sunday	Thursday
Monday	Friday
Tuesday	Saturday
Wednesday	Sunday
Thursday	Monday
Friday	Tuesday
Saturday	Wednesday

Insert new refill with Petipac by sliding under center and right tabs as shown. Slide refill as far right as possible.





With thumb and index finger lift left end of refill as shown and tuck under left tab.



2. On the day after taking the last pink tablet, begin taking one brown tablet daily until all the tablets have been taken.

3. When the last tablet has been taken, put a new refill in your Petipac and, without interruption, begin a new course of tablets by taking the pink tablets first, followed by the brown tablets. There should never be a day when you are not taking a tablet.

4. Continue taking pink tablets without interruption whether or not your period has occurred or is still in progress. Your period will usually occur during the time you are taking brown tablets.

5. If spotting should occur at an unexpected time, continue to take your tablets as directed. Spotting is usually temporary and without significance. However, if bleeding should occur at an unexpected time, consult your physician. Call your physician regarding any problem or change in your general health that may concern you.

6. If you forget to take a pink tablet, take it as soon as you remember, even if it is the next day. Then take the next scheduled tablet at the usual time. If you miss two consecutive pink tablets, take two tablets daily for the next two days. Then resume the regular schedule. While there is little likelihood of pregnancy occurring if you miss only one or two pink tablets, the possibility of pregnancy increases with each successive day that scheduled pink tablets are missed. If you miss three consecutive pink tablets, discard any tablets remaining, and begin a new course of tablets, starting seven days after the last pink tablet was taken, even if you are still menstruating. You should use an alternate means of contraception, other than oral tablets, until the start of your next menstrual period.

7. If you miss one or more brown tablets, discard the remainder and begin a new course of tablets no later than the eighth day after you took the last pink tablet. Under no circumstances should you substitute a brown tablet for a pink one, or take any brown tablets before you have taken all the pink tablets, unless your physician advises you to do so.

At times there may be no menstrual period after a cycle of pills. Therefore, if you miss one menstrual period but have taken the pills exactly as you were supposed to, continue as usual into the next cycle. If you have not taken the pills correctly, you may be pregnant and should stop taking oral contraceptives until your doctor determines whether or not you are pregnant. Until you can get to your doctor, use another form of contraception. If two consecutive menstrual periods are missed, you should stop taking pills until it is determined whether you are pregnant. If you do become pregnant while using oral contraceptives, you should discuss the risks to the developing child with your doctor.

Refills for your Petipac may be purchased in accordance with your physician's prescription. Show the pharmacist your prescription number which is on the label inside your Petipac. Be sure to have your prescription refilled in time so that you can continue taking medication without interruption.

Keep this and all drugs out of the reach of children

## A Survey of Information About Birth Control Pills

Now that you have read the Brief Summary Patient Package Insert, we would like to have you answer questions about the material presented in the Insert and questions about birth control pills presumed to be part of the public knowledge.

Remember your answers are completely anonymous. It is important that you provide thoughtful and accurate information. Please answer on the coding sheet except where fill-ins are required. Do not fill out name or other information requested on coding sheet.

1. If a woman is just beginning to take birth control pills and her period begins on Sunday, what day should she begin taking the first pill?
  - a. Sunday
  - b. Tuesday
  - c. Thursday
  - d. None of these
2. Birth control pills may be prescribed in differing
  - a. Dose levels
  - b. Number of days per month the pills are taken
  - c. A and B above
  - d. There are no differences among brands
3. One of the uses of oral contraceptives is in the prevention of venereal disease.
  - a. True
  - b. False
4. A certain substance in oral contraceptives has been found to cause cancer in certain animals. This substance is
  - a. Progestin
  - b. Testosterone
  - c. Steroid
  - d. Estrogen
5. Oral contraceptives are harmful if taken by children.
  - a. True
  - b. False
6. At any age, the risk of death due to pregnancy is generally \_\_\_\_\_ that from use of oral contraceptives.
  - a. Less than
  - b. More than
  - c. About the same as

7. Most studies have shown that women taking oral contraceptives have a greater risk of developing benign breast disease than women not taking oral contraceptives.
  - a. True
  - b. False
8. Birth control pills are not recommended for women past the age of \_\_\_\_\_.
  - a. 35
  - b. 40
  - c. 55
  - d. None of the above
9. Oral contraceptives taken as directed are about \_\_\_\_% effective in preventing pregnancy.
  - a. 85
  - b. 90
  - c. 95
  - d. 99
10. Women should not take oral contraceptives if they have had:
  - a. Clotting disorders
  - b. Three children
  - c. A heart attack
  - d. Either A or C
11. If a woman has not taken her pills as directed and has missed a period, it is safe to take the pill for one more month.
  - a. True
  - b. False
12. Oral contraceptives have been confirmed to cause cancer in humans.
  - a. True
  - b. False
13. If a woman misses a tablet, she should:
  - a. Take it at the end of the cycle
  - b. Stop the pills and start back 8 days later
  - c. Take it as soon as she remembers
  - d. Throw it away
14. There is evidence that the risk of blood clotting increases with higher estrogen doses.
  - a. True
  - b. False
15. Brown tablets may never be substituted for pink tablets.
  - a. True
  - b. False

16. Cigarette smoking decreases the risk of serious adverse effects on the heart and blood vessels from oral contraceptive use.
  - a. True
  - b. False
17. When a woman has finished taking the 28 tablets in the Petipac, she will need to purchase a new
  - a. Refill
  - b. Dispenser
  - c. Both
18. Before a woman takes birth control pills a physician should administer
  - a. A medical checkup
  - b. A medical and family history
  - c. Both a and b.
  - d. Neither a nor b is needed.
19. The mini pill (another oral contraceptive) is \_\_\_\_\_ effective than the Petipac pill.
  - a. More
  - b. Less
20. All the benefits and the risks of oral contraceptives are discussed in the package insert instructions.
  - a. True
  - b. False
21. There is evidence that estrogens increase the risk of
  - a. High blood pressure
  - b. Infertility
  - c. Cancer of the uterus
  - d. All of the above
22. Once started on oral contraceptives, there is no need to stay under a doctor's continuous supervision.
  - a. True
  - b. False
23. The most common type of oral contraceptive contains a combination of:
  - a. Estrogen and testosterone
  - b. Estrogen and progestogen
  - c. Estrogen and steroids
  - d. Progestogen and steroids

24. If one smokes \_\_\_ or more cigarettes a day, the risk of taking birth control pills is higher.
- a. 10 (cigarettes)
  - b. 15 "
  - c. 20 "
  - d. 30 "
25. Liver tumors can be caused by taking birth control pills.
- a. True
  - b. False
26. The Petipac Tablet Dispenser contains \_\_\_ pink tablets.
- a. 7
  - b. 14
  - c. 21
  - d. 28
27. The most serious side effects associated with oral contraceptives occur quite frequently.
- a. True
  - b. False
28. The brown pills in the Petipac are
- a. Iron
  - b. Vitamin C
  - c. Placebo
  - d. Progestrin
29. Oral contraceptives are sometimes associated with certain side effects which may lead to death.
- a. True
  - b. False
30. Other birth control precautions should be used during the first month that one takes the birth control pill.
- a. True
  - b. False
31. If the pill is taken during pregnancy, the fetus may exhibit
- a. Heart and limb defects
  - b. Higher birth weight
  - c. Breathing disorders
  - d. None of the above
32. To be safe from pregnancy all 28 pills in the Petipac must be taken.
- a. True
  - b. False

33. Oral contraceptives are more effective in preventing pregnancy than is sterilization.
- True
  - False
34. Most side effects of the pill are serious.
- True
  - False
35. Oral contraceptives work principally by
- Preventing the sperm from penetrating the egg
  - Preventing the egg from descending
  - Preventing ovulation
  - Killing the sperm
36. After a woman has taken 28 pills she should wait \_\_\_ days before she starts taking a new cycle of pills.
- 1
  - 5
  - 7
  - None of the above
37. Any time a woman misses \_\_\_ tablets she should also use another method of birth control until the start of her next period.
- 1
  - 2
  - 3
  - 4
38. A woman's period will usually occur during the time she is taking the pink pills.
- True
  - False
39. If a woman has been taking birth control pills and stops in order to get pregnant, her physician may advise her to use alternate forms of birth control for three months.
- True
  - False
40. Oral contraceptives are more effective than
- The intrauterine device
  - Condoms
  - Diaphragms and spermicidal jelly
  - All of the above
41. Gall bladder disease is a serious side effect that is possibly associated with taking the birth control pill.
- True
  - False

42. If spotting occurs at an unexpected time while on the pill, a woman should
- Stop taking the pill immediately
  - Continue taking them
  - Contact her doctor
  - Take one pill every other day until the spotting stops
43. If \_\_\_ consecutive tablets are missed, a woman should discontinue taking the tablets and start a new package after the appropriate number of days.
- 1
  - 2
  - 3
  - 4
44. The "mini pill," a second type of oral contraceptive, contains
- Only estrogen
  - Only progestrogen
  - Only estrogen and progestrogen
  - Only steroids
45. Female offspring of women who have received DES, an estrogen, during pregnancy have a risk of getting cancer of the vagina or cervix in their teens or young adulthood.
- True
  - False

APPENDIX C

INTRODUCTION AND INSTRUCTIONS



## A Survey of Information About Birth Control Pills

We are conducting this study to investigate people's knowledge of birth control pills and to determine how readable the instructions are that accompany birth control pills. We have given you a copy of the Brief Summary Patient Package Insert. This or similar Inserts are found in all birth control packaging. We would like you to read this Insert carefully so that you can answer questions about this Insert. When you are finished reading, we will collect the Insert and provide you with a copy of the questionnaire. You will indicate all answers directly on the questionnaire. After you have completed the form, bring it to one of us. We will provide feedback to you at that time.

Do you have any questions?

Do not put your name on the insert or any other form.

APPENDIX D

FEEDBACK HANDOUT

## Feedback

This study was designed to obtain information about your understanding of the birth control pill package insert and also your opinions about/experiences with the pill. As was mentioned in the introduction, we are concerned that many women, especially teenage women, have problems taking the pill correctly. This incorrect usage of the pill often results in unwanted pregnancy for these women. We are looking at the design of the pills/pill packaging, memory devices, etc. to see how such things affect taking the pill. Also, we are looking at the package insert, which contains directions for correct use. This insert comes with each package of birth control pills. We believe that this insert is difficult to understand for some women; thus, they may use the pill incorrectly. We think that if a woman has something motivating her to understand the directions, she will probably pay closer attention to the directions. Therefore, she will be more likely to use the pill correctly. In this study we have asked three different groups of teenagers to: (1) give their opinions on pills/packaging, memory devices, etc., and (2) read the insert and answer questions. We believe the three groups will be different in their motivation. We appreciate your help and cooperation. If you have any questions, I will be happy to answer them. If you have any more questions about the study, write to:

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Thesis: EFFECTS OF DIFFERING MOTIVATIONAL LEVELS ON ADOLESCENT  
COMPREHENSION OF A BIRTH CONTROL PILL INSERT

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