THE DEVELOPMENT OF A COGNITIVE INSTRUMENT TO ASSESS NURSING STUDENTS' KNOWLEDGE OF CONTRACEPTION

by

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ABSTRACT

This study was the development of a cognitive instrument to assess baccalaureate nursing students' knowledge of contraception in one college of nursing.

The instrument, a multiple choice test, was developed from several sources and included items concerning nine major forms of contraception.

The 80 item test was administered to 54 voluntary student participants in four levels of one nursing program. Item analysis was performed and a 40 item revised test was developed. This test was administered to 39 students from the original sample.

Results of the study indicated a low level of knowledge of contraception. The first test revealed no correlation between demographic variables and knowledge of contraception; the 40 item test indicated similar results. There were minor correlations between demographic variables to knowledge of contraception. Analysis revealed random behavior among respondents with little integration of knowledge of contraception. The revised test was reliable in measuring knowledge as indicated by higher scores for the second administration.

Recommendations of this study include: 1) faculty review of the study results to plan contraceptive information in nursing curricula; 2) repeat study with a larger population; 3) test the tool with a population which has knowledge level of contraception to verify the test's reliability; and 4) the administration of both 80 and 40 item tests to other schools of nursing for comparison of test results.

CHAPTER 1

INTRODUCTION

Access to and delivery of contraceptive information is an integral and challenging aspect of health care. Presently, the world is one of increasing population and diminishing resources. The availability of accurate contraceptive information is a needed and vital aspect of overall health care for today's and future populations.

The use of contraception must be accompanied by accurate information about its use and purpose. This responsibility of providing accurate and informed contraceptive knowledge is largely that of the health professional. According to Shea, Werley, Rosen, and Ager (1973:18),

> Health professionals are frequently viewed as gatekeepers of family planning services, that is, they are significantly instrumental in making family planning services accessible and available to clients. In addition, health professionals hold key positions in providing care related to family planning and in training and supervising others who also participate in giving family planning services.

Nurses must be adequately prepared to assume this vital role and function. Preparation in the form of accurate and adequate knowledge is achieved through educational experience in the professional schools of

nursing. According to Carter (1966:64), "nursing cannot lag behind in preparing its practitioners to assume their professional and societal responsibilities in helping to implement family planning programs." Professional nurses must become well informed about the effects of over-population, knowledgeable about all methods of and use of contraceptives, and sensitive to the feelings and needs of the individuals and families with whom they work. In addition, they must become adept in communication skills and counseling techniques.

Contraceptive information can also be viewed in a community perspective. This perspective includes the responsibilities of the nurse to recognize the needs of the community. These needs are recognized from cultural beliefs, attitudes and values of the population. Professional nurses in their practice must be able to view these variables and provide accurate and appropriate contraceptive information. Provision of this information is based on the educational preparation and human experience of the nurse.

The purpose of this research was the development of a valid and reliable tool to assess knowledge of contraception among upper division baccalaureate nursing students. This research also explored the variables of the human experience and educational process in relation to knowledge

of contraception. These variables of human experience include age, sex, marital status, religious preference, and the sexual and contraceptive experience of the individual.

The development of such a tool can help prepare students for a better knowledge base in the area of contraceptive counseling. The tool can also assist nursing faculty in preparation for curriculum needs in relation to the teaching of birth control and contraception.

Statement of the Problem

Professional nurses need a basic knowledge of contraception in their daily clinical practice, and no valid and reliable instrument to measure this knowledge has been developed.

Significance of the Problem

The development of a tool to assess knowledge of contraception among baccalaureate nursing students is significant. The tool can assist in the preparation of nursing students for their professional responsibilities, including skill, knowledge, and role in the field of family planning. The nursing responsibilities and duties are dependent on accurate and adequate knowledge in this field of nursing practice.

Professional nurses use birth control and contraceptive information in many health care delivery

settings. These settings include nursing practice in maternal-child health care, medical-surgical intervention, community health practice, school and adolescent health, as well as psychiatric nursing. Emphasis of birth control information and contraceptive counseling is now being seen in health promotion delivery systems, such as; family planning clinics, ambulatory care clinics and health maintenance organizations. Professional nurses must also be prepared to deliver adequate and accurate information in these health care settings.

Nurses employed in the maternal-child setting need to be particularly responsive and prepared to meet the needs of new mothers with their concurrent needs for family planning information. Women in the postpartum period are particularly responsive to family planning intervention and information. Thus, the role of the nurse is especially vital during this period. Nursing intervention is dependent upon accurate information concerning contraception as well as the quality and sensitivity of imparting the information.

Nurses in medical-surgical clinical settings require a basic knowledge of the elements of contraceptive methods and practice in order to provide management of the medical-surgical problem and its relation to the individual's contraceptive practice. One example of

nursing management in this setting would be eliciting a contraceptive history. For those patients who use oral contraceptives, the nurse would develop a nursing care plan that includes prevention of thromboembolic episodes.

Professional nurses who practice in a community health agency require knowledge of contraceptive methods and practice to meet clients' needs for information for a successful choice in contraceptive practice. Nurses in this setting also participate in outreach activities to serve those individuals and families who do not know of the availability or have access to family planning services and information for decision making. Accurate knowledge of contraception is necessary for the professional nurse to fulfill these responsibilities to the community of individuals and families who need and desire family planning services.

School health nurses are involved with an adolescent population that has a high rate of unwanted, unplanned pregnancies because of the high degree of unprotected sexual activity. The special needs of this group suggests that intervention by the professional nurse is essential. This intervention in the form of contraceptive information sharing is dependent upon adequate and accurate educational preparation in the area of contraception knowledge.

Nurses who practice in psychiatric clinical settings must also be able to recognize the sexual and contraceptive needs of their clients. Accurate contraceptive information provided in relation to the clients' lifestyle, psychosocial needs and treatment modality must also be based on an accurate and adequate knowledge base.

In health care promotion settings, the professional nurse will be required to share information, counsel, and educate the individual and family on contraceptive methods and practice as part of the delivery of total health care services by the health professional.

To provide a descriptive example of the nurse's role in family planning, statistics concerning nurses involved in family planning services in Arizona are presented. According to the Arizona Family Planning Council, November, 1977, there are 509,750 women of childbearing age (15-44) in Arizona. There are 19 family planning clinics in Arizona and there are 300 community health nurses who staff these clinics in Arizona. Their nursing responsibilities include providing family planning services in clinics and in the home.

These statistics provide a picture of the size of the population to be served and the number of nurses who as part of their community health function, provide contraceptive information. The need for contraceptive

information and services is obvious. Therefore, the need for adequately prepared nursing professionals is essential to meet the needs of the clients they serve.

The American Nurses' Association reflects the professional obligations, standards and responsibilities in the nursing practice of family planning. The following is the American Nurses' Association statement on family planning as presented by McCalister, Thiessen, and McDermott (1973:41),

> The ANA, the professional organization of nurses concerned with the health and welfare of individuals and families, feels that it is the responsibility of all professional nurses:
>
> 1. To recognize the right of individuals and families to select and use such methods for family planning as are consistent with their own needs and mores.
>
> 2. To recognize the right of individuals and families to receive information about family planning if they wish.
>
> 3. To be responsible to the need for family planning.
>
> 4. To be knowledgeable about state laws regarding family planning and the resources available.
>
> 5. To assist in informing individuals and families of the existence of approved family planning resources.
>
> 6. To assist in directing individuals to sources of such aid.

The responsibilities and expectations of the professional organization of nursing in relation to family

planning practice are clearly outlined. Professional nurse participation in family planning has significantly increased in the past decade. Arnold (1967) supports the nurse's role in family planning because of the professional nurse's education and skills. Arnold (1967:27) states, "Nowhere is the creativity of the nurse more needed than in family planning, with the special contemporary significance for the future of mankind, society, the family and the individual."

In order to fulfill the professional responsibilities in providing for effective family services, the knowledge level of contraception is a paramount factor. Arnold (1967:27) emphasized that the nurse as a central figure must be steadfast and dependable. Also, the current methods of contraception and ongoing research require of the nurse, knowledge of physiology, endocrinology, psychology, sociology, and statistics.

The pressure of increasing population within both the family and community are realized throughout the world as deterrents to health, economic and social well being. Thus, the universal need for medical contraceptive services and information is paramount. This social development has been influential in the development of nursing curricula to meet this growing need for education and services.

According to Edmonds (1970:188), awareness among nursing leaders has increased concerning educational development. Educational development includes the need to provide programs on population problems and family planning. The teaching of knowledge and skills provides the foundation for professional nursing preparation. A foundation is necessary to produce competent professional nurses, with consideration of basic nursing principles and techniques needed for this specialized program and services. Needs must be recognized as knowledge increases and technical changes occur, so that greater expectations and responsibilities are accepted in nursing as well as other professions. Edmonds (1970:190) stated, "Today all educated persons must have an awareness of the magnitude of the implications of population problems and nurses should be encouraged to continue adding to their information and understanding."

According to Arnold (1967:26), new contraceptive methods demand of the nurse a greater comprehension of medical and social implications. Family planning is a primary preventive technique; a prevention against personal, family and social ills. Education of the patient depends largely on the nurse. Through the nurse's efforts, the vast growing body of information and literature is channeled to the patient. For nurses to be effective in

the role, they must be intelligent, conscientious, resourceful, and able to communicate correct information.

This study is significant in that it will reflect preparation of the student to assume the professional role in family planning. This preparation will be assessed by the development of a valid and reliable tool to determine the knowledge of upper division nursing students of contraceptive practice.

Limitations

The limitations of this study include the following:

1. The sample was drawn from one baccalaureate program.

2. The study had a sample size of 93 people.

3. The study made no attempt to ascertain or correlate variables of attitudes and values to that of knowledge of contraception.

Conceptual Framework

The development of an instrument to ascertain knowledge of a certain area must relate to the principles of learning and the acquisition of knowledge. Nursing is a profession that deals with the human experience and the capacities of the individual in interaction with the environment. A learning theory that encompasses these

principles is especially appropriate to the development of a cognitive instrument.

The conceptual framework of this study is based on Bruner, Olver, and Greenfield's (1966) theory of learning. Bruner and Anglin (1973:421-422) viewed learning as involving three almost simultaneous processes, namely, "(1) acquisition of new information, (2) transformation of knowledge, and (3) checking the pertinence and adequacy of knowledge." Bruner viewed learning as a process of cognitive growth or "instrumental conceptualism". According to Bruner et al. (1966:319), "It is a view that is organized around two central tenets concerning the nature of knowing." The first tenet is that knowledge of the world is based on a constructed model of reality. Bruner et al. (1966:319) stated,

> Much of the structure of our cognitive models is quite remote from any direct test, and that rests on what might be called an axiomatic base - our ideas of cause and effect, of the continuity of space and time, of invariance in experience and so on.

He discussed some of this axiomatic structure informing the models of reality as already given in the inate nature of the techniques for representing or "modeling" reality: action, imagery and symbolism.

The second tenet of instrumental conceptualism according to Bruner et al. (1966:320) is, "that our models develop as a function of the uses to which they have been

put first by the culture and then by any of its members who must bend knowledge to their own uses." Models are first adopted from the culture and are then adapted to individual use. In the nature of man there are capacities for representing the world in three modes, each of which is constrained by the inherent nature of the human capacities supporting and influencing it.

Bruner described the growth process of man as internalizing the ways of acting, imagining and symbolizing that "exist" in his culture, ways that amplify his powers. Bruner et al. (1966:320-321) stated, "he then develops these powers in a fashion that reflects the use to which he puts his own life."

Development of these powers will depend on three imbedded predicaments. According to Bruner et al. (1966:321), the first of these predicaments has to do with the supply of "amplifiers" that exist in a culture - images, skills and conceptions. The second consideration is the life led by the individual, and the demands that are placed on him. The third and most specialized consideration is the extent to which the individual is motivated to explore the sources of concordance or discordance among the individual's three modes of knowing - action, image and symbol.

The life experience and cognitive growth of the individual is dependent on the cultural and experiential variables which influence the three modes of knowing. Also, the influence of the type of society and its institutions affect the cognitive growth of the individual. Bruner et al. (1966:321) stated,

> There are important institutions and pressures that develop within societies of the technical type, which lead to the demand for confirmation between the three modes of knowing.

Bigge (1976) provided further interpretation to this cognitive growth process as presented by Bruner. A person's perception of an event is a constructive process whereby the individual hypothesizes his sense data to his model of the world, and reviews his hypothesis against additional properties of the event.

Bigge (1976:251) stated,

> A perceiver is viewed not as a passive, reactive organism but rather as a person who actively selects information, forms perceptual hypotheses, and on occasion distorts the environmental input in the interest of reducing surprise and attaining valued goals.

Bigge (1976) viewed this act of perception as of categorization that is based upon a person's making an "inferential leap" from observed cues to his identifying a class of objects.

The development of this instrument to test and measure knowledge of contraceptive information, assesses

the learning process and cognitive growth of the individual based on Bruner's theory of learning. The variables of human experience are also explored in relation to the cognitive process of the individual. These variables include age, sex, marital status, religion, sexual experience and use of contraception.

The information this instrument seeks to assess is that which is integrated within the individual based on his or her model of reality, perception, interaction with the environment, human capacities, and cultural influences.

CHAPTER 2

REVIEW OF THE LITERATURE

Research of nursing students' knowledge of contraception and birth control is limited, although the responsibilities of the nursing profession inherent in this role are well documented. Emphasis on the responsibility of nursing education in preparation for this role is documented in recent literature.

Preparation for professional nurses and their role in family planning involves certain standards and criterion. Wiedenbach, as cited by Edmonds (1970:191), listed and summarized the knowledge she felt is needed by the nurse in order to enact his or her role with relative security and decisiveness. The three categories of knowledge are:

1. Factual knowledge: human reproduction, descriptive terminology, methods, policies, laws, sexual customs and mores, resources for assistance, available literature and teaching materials.

2. Speculative knowledge: theories and general principles formulated to explore phenomena and concepts, such as the precision timing and progression of the procreative process, the interplay of heredity and environment, the concept of family planning and its effects on individuals.

3. Practical knowledge: the ability to communicate to individuals and groups, to know where and how to approach patients and families in need

> of contraceptive advice, to encourage and participate in the development of resources where there are none, to know the techniques and procedures unique to the delivery of family planning services.

An indepth survey done by Shea et al. (1973) explored both nursing student and nursing faculty views of baccalaureate nursing schools' programs that pertained to family planning. The survey included data from 6,333 students and 712 faculty members in 47 nursing schools who responded to a questionnaire survey. According to Shea et al. (1973:21), the findings revealed that students saw more of a discrepancy in instructional content than did faculty. The greatest instructional deficiencies as perceived by students included: psychological aspects of birth control; problems related to unplanned pregnancy; population-pollution problem as related to family planning; and opportunities to observe and/or counsel patients in family planning. The four content items for which faculty perceived as the greatest instructional deficiencies were: human sexuality; population-pollution problem as related to family planning; opportunities for students to observe and/or counsel patients in family planning; and psychological aspects of birth control.

In consideration of the instructional process, it is important to view the intrapersonal development of an individual in relation to learning. The learning process of family planning is considered to be unique. This

uniqueness may be reflected in the student's educational preparation of family planning and human sexuality, as well as in personal growth and experience. According to Sister Mary Helen (1967:44), students in baccalaureate nursing programs vary in depth of knowledge, experience and maturity. They tend to have several characteristics in common. She stated, "these characteristics must be taken into account in planning how any of the aspects of family planning are to be taught." These characteristics included the following: young students often find it difficult to be objective when they feel strongly about something; young students often attribute their own set of values to others; and, students generally are unsophisticated in the vocabulary describing sexual intercourse and the birth process. They also have developed opinions about sexual love, human reproduction, and birth regulation; but they have not learned some of the processes involved in human intimate relationships. These intrapersonal factors involved with the educational process and knowledge of contraceptive methods and practice may determine and influence the knowledge of the nursing student.

There are limited research studies available concerning the college age individual and knowledge of contraception, although there are numerous studies concerning attitudes and contraception. The following two studies are examples of this published research.

In a study conducted by Shaw (1972), the knowledge and attitudes of college students toward controversial social health issues was explored. Controversial social health issues included premarital sexual relations, abortion, contraception, drug abuse, sexual deviance, and venereal diseases. The basic assumptions of the study were that students not exposed to a formal social health oriented course have a lower level of health knowledge, and will acquire a higher level of knowledge in social health principles after formal instruction. The study was conducted at the University of Massachusetts and used a 50 fact questionnaire given to 120 students. The questionnaire was administered during the first class meeting and at the conclusion of a general health course. Results of this study showed that the increase in social health knowledge was statistically significant for the total group. Shaw (1972) inferred that knowledge increased in selected areas of knowledge, yet total overall scores remained consistently low.

A study by Munz (1976) was conducted concerning knowledge of prevention of pregnancy. The sample was composed of undergraduate students at McGill University in Montreal. Munz used a 24 item multiple choice questionnaire with items directly applicable to the prevention of pregnancy. Of a total sample of 509 students, 240 thought their knowledge of contraception was inadequate. In

evaluation of the students' knowledge using the questionnaire, 52.1 percent did have an inadequate knowledge of contraception. Another 269 students thought they had an adequate knowledge of contraception. Of these, 82.2 percent did have adequate knowledge. The 17.8 percent who did not have adequate knowledge but thought they did are presumably at high risk for unwanted pregnancies.

Munz (1976:502) stated,

> Of those students who have engaged in sexual intercourse, 20.2 percent have inadequate knowledge of contraception by our criteria and a similar proportion (20.2 percent) risk unwanted pregnancy by failing to use an effective method of birth control.

Munz (1976:503) summarized the chief findings of the study; 34 percent of the undergraduates sampled were found to have inadequate knowledge. This segment of the population does need more information about birth control, but, by far the majority of the students who risked unwanted pregnancy did so in spite of adequate knowledge. This emphasized that motivation, rather than purely lack of information, played an important role in the unwanted pregnancy rate of the college student population.

From these two studies, it appears that integration of knowledge of contraceptive methods is minimal. Information is available, but motivation to learn is slight. Other factors such as attitudes, values, and religious factors must be taken into consideration. As an end result,

knowledge and use of contraceptive methods is minimal and poses a threat to the personal and social integrity of the individual.

Studies indicate that general knowledge of contraception is low among college age men and women. To meet the needs of this age group, it appears that nursing students need knowledge and skills to meet needs of clients during the reproductive years. It is imperative that professional health care givers, particularly nurses, have an intensive knowledge base of contraceptive information to present to clients, including successful choice of alternatives for prevention of pregnancy appropriate to lifestyles.

Literature concerning the practicing professional and contraceptive knowledge is also limited. A survey performed by Howard, Lawrence, and Rasile (1972) of 234 public health nurses in the Philadelphia area attempted to determine public health nurses' knowledge and attitudes about family planning. This survey used a 37 item questionnaire and showed that nurses under 30 years of age had higher mean scores. Baccalaureate graduates had a higher mean score than diploma graduates. According to Howard et al. (1972:963), "those nurses who received family planning instruction in their school programs did noticeably better than those who reported they did not receive such

instruction." Variables of religion and marital status were also taken into account. Non-Catholic nurses had higher mean scores than Catholic nurses. Also, those nurses who reported having used selected methods of contraception as opposed to the rhythm method achieved higher scores.

The review of the literature reflects the standards in nursing education required for effective professional role function in family planning. The literature also reflects present knowledge levels of the college age individual and the influence of formal instruction on knowledge.

The process of education and learning is a process which requires a conceptual level of cognition, based on the individual's perception of himself and the environment in which he exists. These dynamics are intimately involved with the integration of the theoretical and practical aspects of knowledge of contraception of the student in preparation for the professional role.

Shea et al. (1973:23-24) emphasized the preparation of the health professional and his or her role in family planning by emphasizing the necessity for high quality, accessible services as a contribution to improvement in the quality of life. The provision and nature of these services is highly dependent upon the preparation of health professionals.

CHAPTER 3

METHODOLOGY

This study was designed to test the knowledge of contraception instrument constructed by the investigator for validity and reliability measurements. The instrument was designed to determine knowledge of contraception of upper division baccalaureate nursing students. This chapter describes the research setting, the selection of the sample, the instrument constructed to measure knowledge of contraception, and the analysis of the data.

The Setting

The study was conducted at The University of Arizona College of Nursing in Tucson, Arizona. This four year baccalaureate program includes two years of liberal arts and sciences with integrated nursing content beginning in the junior year. The integrated curriculum does not have a specifically designed course in birth control and contraception. Content is alluded to in the maternal-child strand in each of the major areas of concentration. The total undergraduate enrollment in the College of Nursing is approximately 217 students.

The Sample

Out of the total possible population of 217 students, 54 junior and senior students volunteered to participate in the validation of the instrument. To retest selected items, 39 junior and senior students from the original sample volunteered to participate in the retest procedure.

The number of students by semester for the two test administrations follows. The sample for the first test consisted of 16 students in the first semester of the junior year, eight students in the second semester of the junior year, and 21 students in the fifth semester of the senior year of the nursing program. The sample for the revised test consisted of 10 students in the first semester of the junior year, three students in the second semester of the junior year, six students in the third semester of the junior year, and twenty students in the fifth semester of the senior year in the nursing program.

The research proposal outlining the purpose and methodology of the study was presented to The University of Arizona College of Nursing Research Committee. Following the Research Committee's approval of the proposal, the study was presented to the Human Subjects' Review Committee of The University of Arizona for approval. Following approval of the Human Subjects' Review Committee, the study was

presented to the College of Nursing faculty, who gave approval for the researcher to ask students to participate.

The researcher arranged with junior and senior faculty to approach the students for a brief portion during one class period to explain the study and enlist cooperation. Included in the explanation of the study were: (1) the purpose of the study; to test the tool for reliability and validity and measure contraceptive knowledge of nursing students; (2) the strictly anonymous and confidential nature of the information; (3) the ability to withdraw from the study at any time, including the option to omit one or more specific questions; (4) the time needed to complete the first test was approximately 60 minutes, and the time needed was 30 minutes to complete the second test, although the students could take all the time they needed to complete the questionnaire. In addition, the time and place for administration of the questionnaire was provided. (Refer to Appendixes A and B for consent forms.)

The Instrument

The questionnaire used in this study was a cognitive instrument developed to measure basic knowledge of contraception. The questionnaire was a multiple choice four option questionnaire developed by the investigator compiled from three sources. The three sources were: (1) the Howard, Lawrence and Rasile instrument used to assess

contraceptive knowledge of public health nurses; (2) the Planned Parenthood Center of Tucson and the Information and Education Department of the agency; and (3) a literature review implemented to provide information for the development of the test items.

The number of test items was based on a table of specifications. The table of specifications dictated the number of items concerning each method. This table was based on the percentage of the United States population using each specific method of contraception with information obtained from Planned Parenthood Federation of America, September 26, 1977. Two items were developed for every five percent of use of the specific method of contraception. For example, 25 percent of the U.S. population uses oral contraceptives, thus for each 5 percent, two items were developed for a total of ten items. The number of items was doubled for the first test to provide an adequate number of items. For the first test, the total number of items concerning oral contraceptives was 20 questions. For the first test, the number of items concerning all methods was doubled for a total of 80 items (see Table 1).

Table 1. Table of Specifications For Test Item Development

Contraceptive Method	Percent of U.S. Population Using Method	Number of Items on Test 1	Number of Items on Test 2
Sterilization	30	24	11
Oral Contraceptives	25	20	7
Intrauterine Devices	10	8	5
Condoms	10	8	5
Diaphragm	5	4	3
Spermicides	5	4	3
Natural Methods	5	4	3
Douching	5	4	2
Withdrawal	5	4	1
Total	100	80	40

To ensure the content validity of the items, three experts in the field of contraception selected and sorted items from a pool of 163 items. These experts were an assistant professor in nursing, The University of Arizona College of Nursing; a gynecological nurse practitioner and the Director of Education, both of the Planned Parenthood Center of Tucson. These experts selected items from the item pool based on the comprehensiveness, difficulty, accuracy, content responses and wording of the items. The experts were also asked to select items based on the information that a nurse would utilize in nursing practice for client selection of a contraceptive method and for patient education.

The questionnaire included items concerning the major forms of contraception: sterilization, oral contraceptives, intrauterine devices, diaphragm, spermicides, condoms, douching, rhythm method, and withdrawal technique. The content of the questionnaire included items concerning the action of the method, its use, side effects, effectiveness, failures, advantages and disadvantages.

The breakdown of the number of items concerning each method of contraception will follow. For the 80 item test questionnaire, there were 20 items concerning oral contraceptives, eight items concerning intrauterine devices, four items concerning the diaphragm, eight items concerning

condoms, 12 items concerning vasectomies, 12 items concerning female sterilization, and four items each concerning douching, rhythm, withdrawal, and spermicides.

Computer analysis was initiated after the first administration to determine the selection of items for the retest questionnaire. The selection of items was based on absolute and relative frequency results and means within the range of .1500 and .8000. Professional judgement was also used in the selection of items.

For the 40 item test, there were seven items concerning oral contraceptives, five items concerning intrauterine devices, two items concerning the diaphragm, five items concerning condoms, six items concerning vasectomies, five items concerning female sterilization, two items about douching, one item concerning withdrawal, and three items each concerning rhythm and spermicides.

Difficulties Encountered

Major difficulties were encountered in the collection of data which contributed to the limited sample size. One of the major difficulties was securing access to the junior and senior students to enlist participation for the study. Some of the problems in securing access to the student population were:

1. At the classes the investigator explained the study to enlist participation, one-quarter of the students were

absent. This rate of absenteeism further reduced the number of students available to understand the nature of the study. No follow-up was planned.

2. During the time of the second administration, many major tests in other courses, and impending final exams further reduced the number of students who were willing to take the questionnaire the second time.

Another difficulty encountered was the time schedule and locations for administration of the questionnaire. Some of these were:

1. The lack of an appropriate environment for test taking. No classrooms were available to the investigator for two of the four groups. This resulted in students taking the test in hallways with limited seating, and with considerable noise due to construction work in the building.

2. The administration of the questionnaire was scheduled for a particular group at 12 noon, immediately following a class. The limited number of students who volunteered to take the questionnaire may have been due to the time the test was scheduled.

CHAPTER 4

PRESENTATION OF DATA

This chapter presents the data of the study in four sections. The first section, demographic and experiential data, presents selected aspects of the background data from the first part of the questionnaire. The second section presents the response frequencies of the 80 and 40 item questionnaire and the means and standard deviations of the 80 and 40 item questionnaire. The third section presents selected correlational data. The fourth section is a discussion of the factor analysis of the data.

Demographic and experiential data are presented in Tables 2 through 17 in this chapter.

Demographic Data

Demographic data includes term of nursing program, age, sex, marital status, religious preference, sexual activity status, current or past use of contraceptives, and contraceptive use by method of respondents.

As shown in Table 2, the total number of respondents for the first test was 54 respondents. The total number for the revised test was 39 respondents. In both test administrations, the greatest number of respondents were

Table 2. Semester in Nursing Program of Respondents

	First Test		Revised Test	
	Number	Percent	Number	Percent
First Term	16	29.6	10	28.2
Second Term	8	14.8	3	7.7
Third Term	9	16.7	6	15.4
Fifth Term	21	38.9	20	48.7
Total	54	100.0	39	100.0

senior nursing students in the fifth semester of the nursing program. The fewest number of respondents in both administrations were junior students in the third semester of the nursing program.

As shown in Table 3, the age range for the total group of respondents was 19-39 years of age. The modal age for the total group for both test administrations was 21, with 27.8 percent of the group falling in this category for the first test, and 25.6 percent for the second test.

Fifty-four students participated in the first administration of the questionnaire. Thirty-nine students participated in the second administration of the questionnaire (see Table 4).

As shown in Table 5, the majority of individuals reported their marital status as single. In the first test, 33 individuals or 61.1 percent were single; in the second test, 24 individuals or 59.0 percent reported being

Table 3. Age of Respondents in Years

	First Test		Second Test	
Age in Years	Number	Percent	Number	Percent
19	1	1.9	0	0
20	8	14.8	7	17.9
21	15	27.8	11	25.6
22	11	20.4	9	23.1
23	3	5.6	2	5.1
24	4	7.4	1	2.6
26	1	1.9	1	2.6
27	2	3.7	1	2.6
28	2	3.7	1	2.6
30	1	1.9	1	2.6
32	1	1.9	1	2.6
34	1	1.9	1	2.6
35	2	3.7	1	2.6
39	1	1.9	0	0
Total	54	100.0	39	100.0

Table 4. Sex of Respondents For the Two Test Administrations

	First Test		Second Test	
Sex	Number	Percent	Number	Percent
Male	3	5.6	1	5.1
Female	51	94.4	38	94.9
Total	54	100.0	39	100.0

Table 5. Marital Status As Reported by Respondents For Two Test Administrations

	First Test		Second Test	
Marital Status	Number	Percent	Number	Percent
Single	33	61.1	24	61.0
Married	16	29.6	11	30.3
Post-Married	5	9.3	3	8.7
Total	54	100.0	38	100.0

single. In the second test, one individual did not respond to this item.

The majority of respondents for both tests reported "other" as their religious preference. The "other" category included all religious preferences other than Catholicism. As shown in Table 6, 26 individuals or 48.1 percent reported "other" as their religious preference in the first test. In the second test, 18 individuals or 46.2 percent reported "other" as their religious preference. In the first test, 15 individuals or 27.8 percent indicated no preference for religious preference. In the second test, eight individuals or 23.0 percent indicated no preference for religious preference.

As can be seen in Table 7, the majority of respondents reported as being sexually active at the present time. For the first test, 36 individuals or 66.7 percent indicated being sexually active at this time. For the

Table 6. Religious Preference As Reported by Respondents For Two Test Administrations

	First Test		Second Test	
Religious Preference	Number	Percent	Number	Percent
Other	26	48.1	19	46.2
Catholic	13	24.1	12	30.8
None	15	27.8	8	23.0
Total	54	100.0	39	100.0

Table 7. Sexual Activity Status As Reported by Respondents For the Two Test Administrations

	First Test		Second Test	
Sexual Activity Status	Number	Percent	Number	Percent
Sexually Active	36	66.7	27	66.7
Not Sexually Active	18	33.3	12	33.3
Total	54	100.0	39	100.0

Table 8. Current or Past Use of Contraceptives As Reported by Respondents

	First Test		Second Test	
Use of Contraceptives	Number	Percent	Number	Percent
Yes	45	83.3	31	76.9
No	9	16.7	8	23.1
Total	54	100.0	39	100.0

second test, 27 individuals or 66.7 percent indicated being sexually active at this time.

The majority of respondents reported current or past use of contraceptives (see Table 8).

For the first test, 45 individuals or 83.3 percent indicated past or current use of contraception. For the second test, 31 individuals or 76.9 percent indicated past or current use of contraceptives.

As can be seen in Table 9, the majority of respondents reported having used or using oral contraceptives. For the first administration, 18 individuals or 33.3 percent reported past or present use of oral contraceptives. For the second administration group, 11 individuals or 28.2 percent reported past or present use of oral contraceptives. It should be noted that some individuals reported using one or more contraceptive methods. In the second administration, eight individuals did not respond to this

Table 9. Reported Contraceptive Methods Used by Respondents For Two Test Administrations

Contraceptive Method	First Test		Second Test	
	Number	Percent	Number	Percent
Sterilization	3	5.6	4	10.3
Oral Contraceptives	18	33.3	11	28.2
Intrauterine Devices	5	9.3	5	12.8
Diaphragm	10	18.5	6	15.4
Spermicides	7	13.0	5	12.8
Douching	0	0	0	0
Condoms	14	25.9	6	15.4
Withdrawal	1	1.9	1	2.6
Rhythm	1	1.9	1	2.6
None	2	3.7	0	0

item. Douching was not reported as a contraceptive method by any respondents for either of the two administrations.

This section presents the item analysis of the 80 item test. These data include response frequencies and the means and standard deviations for each item of the test. Also presented is the data for the 40 item test.

Table 10 shows the options selected for each item, and the percentage of respondents who selected the correct option in the 80 item questionnaire and the items retained for the 40 item test (see Appendices C and D for complete 80 item and 40 item tests).

Table 11 shows the options selected for each item for the 40 item instrument, and the percentage of respondents having selected the correct option. Appendix D includes the 40 item instrument.

Table 10. Response Frequencies and Percentage Right of 80 Item Test Questionnaire Using Nine Categories Related to Contraceptive Methods

Item Number	Options and Number Selected				Percent Right
	1	2	3	4	
Oral Contraceptives:					
1	0	52*	0	2	96.3
2	40	13*	1	0	24.1
3+	1	37*	15	1	68.5
4+	2	41*	4	7	75.9
5	46*	0	7	1	85.2
6	7	18*	22	7	33.3
7+	12	5	26*	11	48.1
8+	2	0	36*	16	66.7
9	2	2	49*	0	90.7
10	2	51*	0	1	94.4
11+	5	9	3	37*	68.5
12	20	19*	13	1	35.2
13	36	6*	12	0	11.1
14	14	0	18*	22	33.3
15+	3	3	34*	14	63.0
16	0	0	0	54*	100.0
17	4	40*	4	4	74.1
18	4	14*	20	15	25.9
19+	7	34*	10	2	63.0
20	0	39*	13	2	72.2
Intrauterine Devices					
21+	2	5	37*	8	68.5
22+	21*	1	4	27	38.9
23+	5	37*	4	7	68.5
24+	0	0	42*	11	77.8
25	0	6*	47	0	11.1
26	2	49*	2	0	90.7
27	1	0	52*	0	96.3
28	9	37*	4	2	68.5
Diaphragm					
29+	8	2	3	41*	75.9
30+	9	0	45*	0	83.3
31	49*	2	3	0	90.7
32+	1	7	35*	11	64.8
Condom					
33+	3	36	6*	8	11.1
34+	34*	2	18	0	63.0
35+	21	1	30*	2	55.6
36	0	3	7	42*	77.8

Table 10, Continued

Item Number	Options and Number Selected 1	2	3	4	Percent Right
37+	4	9	35*	4	64.8
38+	8	36*	1	9	66.7
39	7	4	46*	4	85.2
40	1	49*	0	4	90.7
Sterilization					
41+	1	10	43*	0	79.6
42	18*	12	0	24	33.3
43	4	4	46*	0	85.2
44	5*	0	46	3	9.3
45+	2	4	10	38*	70.4
46	23	18	11*	1	20.4
47+	19*	1	1	30	35.2
48	13	10	18*	13	33.3
49+	5	28*	0	19	51.9
50	13	21	15*	3	27.8
51+	16	2	25*	8	46.3
52+	6	4	1	43*	79.6
53	1	1	47*	3	87.0
54+	24	25*	4	0	48.1
55	0	0	2	51*	94.4
56+	37*	8	4	1	68.5
57	1	52*	0	0	96.3
58	48*	1	0	0	88.9
59	10*	8	7	23	18.5
60	1	52*	0	0	96.3
61	1	0	51*	1	94.4
62+	6	22*	2	21	40.7
63+	4	17	2	30*	55.6
64+	36*	5	0	12	66.7
Douching					
65+	18	25*	1	7	46.3
66	43*	3	0	6	79.6
67	16*	6	4	26	29.6
68+	5	12	12	21*	38.9
Rhythm					
69+	21	1	4	26*	48.1
70	22	2*	26	2	3.7
71+	30*	9	11	2	55.6
72+	15	4	14	18*	33.3

Table 10, Continued

Item Number	Options and Number Selected 1	2	3	4	Percent Right
Withdrawal					
73	3	2	0	48*	88.9
74	2	1	1	49*	90.7
75+	13	9	30*	1	55.6
76	27	10*	5	8	18.5
Spermicides					
77	1	0	6*	46	11.1
78+	3	38*	2	10	70.4
79+	10	20*	14	8	37.0
80+	2	34*	12	5	63.0

*denotes correct option
+denotes items retained for 40 item tool

Table 11. Response Frequencies and Percentage Right of 40 Item Test Questionnaire Using Nine Categories Related to Contraceptive Methods

Item Number	Options and Number Selected 1	2	3	4	Percent Right
Oral Contraceptives					
1	1	33*	5	0	84.6
2	1	32*	4	1	82.1
3	11	0	23*	5	59.0
4	2	4	28*	5	71.8
5	7	5	1	26*	66.7
6	3	2	28*	6	71.8
7	7	26*	5	1	66.7
Intrauterine Devices					
8	2	3	30*	4	76.9
9	17*	0	1	21	43.6
10	6	29*	1	3	74.4
11	0	0	31*	8	79.5
12	0	37*	1	1	94.9
Diaphragm					
13	3	2	1	33*	84.6
14	5	0	34*	0	87.2
15	1	4	26*	8	66.7
Condom					
16	4	20	8*	7	20.5
17	22*	5	11	1	56.4
18	12	0	27*	0	69.2
19	1	7	28*	3	71.8
20	2	32*	0	5	82.1
Sterilization					
21	0	11	28*	0	71.8
22	1	4	7	26*	66.7
23	26*	2	1	10	66.7
24	7	21*	0	10	53.8
25	11	0	23*	5	59.0
26	6	1	1	31*	79.5
27	21	15*	3	0	38.5
28	30*	5	4	0	76.9
29	4	20*	0	14	51.3
30	2	15	1	21*	53.8
31	28	0	0	11*	71.8

Table 11, Continued

Item Number	Options and Number Selected 1	2	3	4	Percent Right
Douching					
32	16	19*	1	2	48.7
33	2	11	12	14*	35.9
Rhythm					
34	12	3	0	24*	61.5
35	24*	4	8	3	61.5
36	15	1	12	11*	28.2
Withdrawal					
37	11	6	22*	0	56.4
Spermicides					
38	3	26*	3	6	66.7
39	6	18*	8	6	46.2
40	1	25*	10	2	64.1

*denotes correct option

Mean and Standard Deviation

Table 12 shows the mean and standard deviation for the correct options of the 80 item test. Items were selected from this instrument for the final instrument within the mean range of .1500 and .8000. For item number 16, all respondents selected the correct option, thus, creating a mean of 1.000 and standard deviation of 0. Items 1, 27, 57, and 60 had the highest mean of .9630. Item 70 had the lowest mean of .0370.

Table 13 shows the mean and standard deviation for the correct option of the 40 item test. Item 12 had the highest mean of .9487 and item 16 had the lowest mean of .2051.

Correlational Data

This section describes correlational data including correlation of contraceptive use to knowledge and analysis of variance of demographic and experientiel variables. The data are that of the administration of the 40 item questionnaire.

Table 14 shows the correlation coefficient of contraceptive use to knowledge of contraception. The correlation coefficient using Pearson's R method of analysis attempted to correlate knowledge as indicated by correct options chosen on the two tests to the use of the nine contraceptive methods reported by the respondents.

Table 12. Mean and Standard Deviation of Correct Answers For 80 Item Test Using Nine Categories Related to Contraceptive Methods

Item Number	Mean	Standard Deviation
Oral Contraceptives		
1	.9630	.1906
2	.2407	.4315
3	.6852	.4688
4	.7593	.4315
5	.8519	.3586
6	.3333	.4758
7	.4815	.5043
8	.6667	.4758
9	.9074	.2926
10	.9444	.2312
11	.6852	.4688
12	.3519	.4820
13	.1111	.3172
14	.3333	.4758
15	.6296	.4874
16	1.0000	0
17	.7407	.4423
18	.2593	.4423
19	.6296	.4874
20	.7222	.4521
Intrauterine Devices		
21	.6852	.4688
22	.3889	.4921
23	.6852	.4688
24	.7778	.4196
25	.1111	.3172
26	.9074	.2926
27	.9630	.1906
28	.6852	.4688
Diaphragm		
29	.7593	.4315
30	.8333	.3762
31	.9074	.2926
32	.6481	.4820
Condom		
33	.1111	.3172
34	,6296	.4874
35	.5556	.5016
36	.7778	.4196

Table 12, Continued

Item Number	Mean	Standard Deviation
37	.6481	.4820
38	.6667	.4758
39	.8519	.3586
40	.9074	.2926
Sterilization		
41	.7963	.4965
42	.3333	.4758
43	.8519	.3586
44	.0926	.2926
45	.7037	.4609
46	.2037	.4065
47	.3519	.4820
48	.3333	.4758
49	.5185	.5043
50	.2778	.4521
51	.4630	.5033
52	.7963	.4065
53	.8704	.3390
54	.4815	.5043
55	.9444	.2312
56	.6852	.4688
57	.9630	.1906
58	.8889	.3172
59	.1852	.3921
60	.9630	.1906
61	.9444	.2312
62	.4074	.4960
63	.5556	.5016
64	.6667	.4758
Douching		
65	.4630	.5033
66	.7963	.4065
67	.2963	.4609
68	.3889	.4921
Rhythm		
69	.4815	.5043
70	.0370	.1906
71	.5556	.5016
72	.3333	.4758

Table 12, Continued

Item Number	Mean	Standard Deviation
Withdrawal		
73	.8889	.3172
74	.9074	.2926
75	.5556	.5016
76	.1852	.3921
Spermicides		
77	.1111	.3172
78	.7037	.4609
79	.3704	.4874
80	.6296	.4874

Table 13. Mean and Standard Deviation of Correct Answers of 40 Item Test From Nine Categories Related to Contraceptive Practice

Item Number	Mean	Standard Deviation
Oral Contraceptives		
1	.8462	.3655
2	.8205	.3888
3	.5897	.4983
4	.7179	.4559
5	.6667	.4776
6	.7179	.4559
7	.6667	.4776
Intrauterine Devices		
8	.7692	.4268
9	.4359	.5024
10	.7436	.4424
11	.7949	.4091
12	.9487	.2235
Diaphragm		
13	.8462	.3655
14	.8718	.3387
15	.6667	.4776
Condom		
16	.2051	.4091
17	.5641	.5024
18	.6923	.4676
19	.7179	.4559
20	.8205	.3888
Sterilization		
21	.7179	.4559
22	0	0
23	.6667	.4776
24	.5385	.5050
25	.5897	.4983
26	.7949	.4091
27	.3846	.4929
28	.7692	.4268
29	.5128	.5064
30	.5385	.5050
31	.7179	.4559

Table 13, Continued

Item Number	Mean	Standard Deviation
Douching		
32	.4872	.5064
33	.3590	.4860
Rhythm		
34	.6154	.4929
35	.6154	.4929
36	.2821	.4559
Withdrawal		
37	.5641	.5024
Spermicides		
38	.6667	.4776
39	.4615	.5050
40	.6410	.4860

Table 14. Correlation Coefficients, Contraceptive Use to Knowledge

Method	r(Use, Knowledge)	
	First Test	Second Test
Sterilization	.2040	.2101
Oral Contraceptives	.3818	.2924
Intrauterine Devices	.1486	.3006
Diaphragm	.0380	.0589
Spermicides	.1939	-.0754
Douching	99.0	99.0
Condom	.3611	.3020
Withdrawal	-.1230	-.1906
Rhythm	.1427	-.1906
None	99.0	99.0

Correlations remained similar for both test administrations for 8 of the 9 categories. The greatest significance in the 9th category in this correlation analysis was diaphragm use to knowledge, at the significance level of .0380 for the first test and .0589 for the second test.

Analysis of Variance

The statistical test of analysis of variance was performed on test scores of the second test administration to the demographic and experiential variables. The first test administration revealed no significant ANOVA values and will not be presented here. This analysis determines if a significant difference exists between the mean and standard deviation of the variables to knowledge scores. The significance level is determined by f probability which is lower than .05. A significant f probability will yield

a low f ratio. Only the significant f ratios and f probabilities will be described here. With the administration of the 40 item test, statistically, significant changes were seen.

Table 15 shows the relationship of marital status to age, sexual activity, contraceptive use, and the methods of contraception of douching, rhythm, and withdrawal, to test scores. The f probability in all these cases was lower than .05, thus, yielding a significant f ratio.

This analysis indicates that knowledge levels are significant for the variables of age, sexual activity, past or current contraceptive use, and douching, rhythm and withdrawal as methods of contraception to marital status of the respondents. The other variables of term in the nursing program, religious preference and the methods of contraception of sterilization, oral contraceptives, intrauterine devices, diaphragm, and spermicides were not statistically significant.

Table 16 indicates the analysis of variance of knowledge of contraceptive scores for the variable of diaphragm use to religious preference. Diaphragm use was the only variable that showed a significant degree of difference of mean and standard deviation and knowledge scores.

Table 17 indicates the relationship of term in nursing program and spermicide use to knowledge levels.

Table 15. Analysis of Variance of Marital Status to Selected Variables With 40 Item Test Only

Marital Status	Single		Married		Post-Married		F ratio	p(f)
	Mean	S.D.	Mean	S.D.	Mean	S.D.		
Age	21.7	1.6	27.6	12.3	30.7	9.1	3.85	0.031
Sexual Activity	.52	.51	1.00	0.00	.67	.58	4.52	0.018
Contraceptive Use	.60	.50	1.00	0.00	1.00	0.00	4.135	0.025
Douching	.413	.32	.31	.25	.83	.29	3.41	.045
Rhythm/Withdrawal	.44	.22	.54	.15	.83	.14	5.17	.011
Total	.55	.13	.62	.10	.75	.12	3.84	.031
N	23		11		3			

Table 16. Analysis of Variance of Religious Preference and Diaphragm Use

Religion	Other		Catholic		None		F ratio	p(f)
	Mean	S.D.	Mean	S.D.	Mean	S.D.		
Diaphragm Use	0.00	0.00	.33	.49	.22	.44	3.6	.036
N	18		12		9			

Table 17. Analysis of Variance of Semester in Nursing Program to Spermicide Use

Term	First Semester		Second Semester		Third Semester		Fifth Semester		F ratio	p(f)
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.		
Spermicide Use	.80	.23	.55	.19	.38	.32	.56	.27	.3250	.034
N	10		3		6		19			

Spermicide use in relation to term of nursing program was the only variable that indicated a significant difference between the mean and standard deviation indicating a significant level of knowledge of contraception for these variables.

Factor Analysis

Factor analysis was calculated for both the 80 item and 40 item questionnaire. This analysis of data for underlying dimensions did not show any consistency. This development is consistent for a knowledge test for individuals who do not show integration or compartimentalization of knowledge. There will be no presentation of this data.

CHAPTER 5

DISCUSSION

This study involved the development of a valid and reliable instrument to measure baccalaureate nursing students' knowledge of contraception. The instrument was developed as a 80 item multiple choice questionnaire covering the major forms of contraception; sterilization, oral contraceptives, intrauterine devices, diaphragm, spermicides, condom, douching, withdrawal and rhythm. The questionnaire was administered to 54 baccalaureate nursing students from the first, second, third, and fifth semesters of the nursing program. After computer analysis, the instrument was refined to a 40 selected item multiple choice questionnaire. The 40 item instrument was administered to 39 students of the original sample. Demographic and experiential variables of age, sex, marital status, religious preference, sexual activity, and contraceptive use were also assessed in relation to knowledge of contraception.

This chapter presents the interpretation of the findings followed by conclusions and recommendations for further study.

Interpretation of the Findings

Statistical analysis of data for the 80 item test revealed no significant levels of knowledge on total scores at the .05 level of significance. Also, no significant statistical correlation was indicated between the demographic and experiential variables and knowledge of contraception.

Selection of items for the 40 item instrument was based on the absolute and relative frequencies from the first administration. Items were selected for the final 40 item instrument with means that fell within the .1500 and .8000 range. This range was selected for 54 of the items fell within this mean range. Particular items were selected for absolute frequencies that fell within the 40-70 percent range. One exception was item 33, which 11.1 percent of the respondents got correct. The mean for this item was also low, .1111. This item was retained for it was felt the information was important to retest, as it concerned condom use. Other items which did not meet the criterion of mean and absolute frequencies were retained for their subject matter and close proximity to the selected mean and absolute frequencies.

On the second administration of the refined tool, the scores and percentage correct of the 40 item instrument were higher. Factor analysis revealed no significant

degree of integration of knowledge. In general, the statistical analysis revealed random behavior and no generalized degree of significance between the variables and knowledge of contraception. The items of the questionnaire were strong enough to measure knowledge, yet overall knowledge was low, and was not significant at the .05 level.

Variables that did reveal significant difference between means was the independent variable of marital status to the dependent variables of age, sexual activity, contraceptive use, and douching, rhythm/withdrawal as means of contraception. The F ratio range was 3.0 to 5.17. The independent variable of religion and the independent variable of diaphragm use revealed a significant relationship between means for a F ratio of 3.6. The independent variable of semester in nursing program showed a relationship to the dependent variable of spermicide use, revealing a F ratio .3250. Students in the first semester of the nursing program had the lowest level of knowledge; students in the third semester of the nursing program had the highest level of knowledge. Students in the second and fifth semester had similar degrees of knowledge. The data imply that knowledge was integrated during the third semester, and had decreased by the final semester of the nursing program.

Conclusions

On the basis of the findings of this study, it can be concluded that nursing students in this convenience sample have a low level of knowledge of contraception. The variables of religious preference, age, sex, marital status, sexual activity, and past or current contraceptive use have little statistical association or bearing on knowledge of contraception. It is assumed that knowledge of contraception must be achieved through formal learning experience. On the basis of the findings of students' knowledge by semester of nursing program, it is believed that this College of Nursing does not provide an adequate curriculum vehicle for the integration of knowledge concerning contraception in the present curriculum.

The development of this instrument to measure contraceptive knowledge did adequately measure contraceptive knowledge. This is shown by the improvement of test scores from the second administration of the tool. The items remained consistent in measuring knowledge of contraception.

Due to the voluntary nature of student participation in this study, those who participated might have been more motivated than their classmates to participate in a research project that involved measurement of contraceptive knowledge. Therefore, a random and larger sampling could be expected to yield lower scores than those produced in this voluntary sample.

The professional nurse has growing responsibilities in the area of contraceptive counseling in all aspects of patient care. Curriculum content must be planned to facilitate the professional nurses' knowledge and role as part of total patient care through health care delivery. With an awareness of the present knowledge levels of contraception of baccalaureate nursing students in this College of Nursing, course content can be planned to help the baccalaureate student reach a level of competent and professional nursing practice.

Bruner et al. (1966) indicated that individuals learn through the three modes of knowing; action, image and symbol. These three modes of knowing describe the individual's scope of reality. The cognitive growth of the individual is affected by the cultural and experiential variables of the life experience. This study demonstrated that the variables of life experience, those of marital status and personal contraceptive use do influence knowledge and integration of contraceptive information. Generally, students did not have a uniform base of knowledge concerning contraceptive information at the time of completion of the nursing program. Specific and uniform content in the curriculum would insure adequate integration of accurate information concerning contraception.

Recommendations

The recommendations based on this study include the following:

1. A study using a larger sample should be carried out to verify the findings.

2. To further verify the instrument's reliability, the instrument should be administered to a population which is expected to have a high degree of contraceptive knowledge. This population includes: gynecological nurse practitioners; physicians and contraceptive counselors; health educators; and teachers of special populations.

3. A faculty review of the study results which would assist in planning contraceptive course content in an integrated curriculum.

4. Administration of the instrument in other schools of nursing, including diploma and associate degree programs. Further testing would include using both 80 and 40 item tests for comparison of test results.

CHAPTER 6

SUMMARY

This study was designed to measure contraceptive knowledge of nursing students in an integrated, baccalaureate curriculum. Effective contraceptive practice must be based on accurate and adequate knowledge as to its use and practice. Contraception and contraceptive practice is vital to the individual's and family's total health care practices. Knowledge specific to contraceptive use must be accurate, and information imparted to the client will reflect the student's intervention in patient care.

A review of the literature documented the professional nurses' role in contraceptive counseling for the client and family. This role is one which involves using an adequate knowledge base and effective interpersonal skills. The review of the literature also indicated that discrepancies exist in nursing curriculums concerning contraceptive content. Research studies show that the college age population has a low level of knowledge concerning contraception. At this time, there was no valid and reliable instrument that measured knowledge of contraception.

Based on this information, the investigator proposed a study which included the development of a valid and

reliable tool to measure contraceptive knowledge of baccalaureate nursing students in one college of nursing. Proposed in this study was the relationship of demographic and experiential variables of age, sex, marital status, religious preference, sexual activity and contraceptive use to individual knowledge of contraception.

The instrument was developed from the following three sources: the Howard, Lawrence and Rasile instrument for assessment of contraceptive knowledge of public health nurses; the Planned Parenthood Center of Tucson; and a literature review conducted by this researcher. For content reliability, the test questions were reviewed by a panel of experts. The instrument in its original state of 80 multiple choice items was administered to 54 nursing students who volunteered to participate in the study. The students were in four semesters of the nursing program. The range of term was first semester nursing students to last semester senior students. After computer item analysis, the 80 item tool was refined to a 40 item instrument. The selection of the 40 item instrument was based on means and absolute frequencies. This 40 item instrument was administered to 39 students from the original sample after a two week interval. The baccalaureate nursing program in which this study was conducted contained no specific course in contraception.

The scores of the 80 item questionnaire revealed a low level of knowledge among the total group. No significant level of knowledge was achieved. The scores of the 40 selected item questionnaire were higher as to be expected, yet total level of knowledge remained consistently low. There were only a few variables which correlated with knowledge levels. These variables included independent variable of diaphragm use to knowledge, independent variable of marital status to the dependent variables of age, sexual activity, contraceptive use, douching, rhythm, and withdrawal as methods of contraception. Other isolated variables which showed correlation was the independent variable of religion to the dependent variable of diaphragm use and the independent variable of term in nursing to the dependent variable of spermicide use. Generally, computer analysis revealed random behavior among the individuals who participated in the study.

On the basis of the findings of the study, it was concluded that integration of knowledge of contraception by the nursing students sampled was not evident. It is necessary that greater curriculum emphasis be placed on contraceptive information in this College of Nursing.

Four recommendations are made based on this study. The first is, that a larger study be carried out using a random sample of students. The second is, to administer

the tool to a population that has a high level of contraceptive knowledge to verify reliability of the instrument. The third recommendation is for faculty review of the results of the study for planning for contraceptive information in an integrated nursing curriculum. The fourth recommendation is for administration of the 80 and 40 item tools in other schools of nursing for comparison of test results.

This study evidences the need for increased awareness of nursing students' knowledge of contraception. In order to meet client's needs in family centered health care, the baccalaureate nursing student needs adequate and accurate knowledge in the area of contraceptive practice.

Nursing curricula must be developed to meet the information needs of the nursing student. An adequate information base is necessary to prepare the student for his or her role in contraceptive counseling, and for total patient care.

APPENDIX A

HUMAN SUBJECT CONSENT FORM: PRE-TEST FORM

Dear Nursing Student:

I, Alison Stone, am conducting a study titled, "The Development of a Cognitive Instrument to Assess Nursing Students' Knowledge of Contraception". You are invited to participate in the validation of a questionnaire to determine nursing students' knowledge of contraception. The study consists of a questionnaire containing 80 multiple choice questions which will require 60 to 80 minutes of your time. You will be asked to respond to questions concerning the method, practice, advantages, disadvantages, and effectiveness of the major forms of contraception. You will also be invited to again participate in the taking of a 40 item multiple choice questionnaire which will be derived from this questionnaire two weeks after this date. There are also seven questions asking some biographical data about yourself.

In order to assure confidentiality, study participants are not identified by name on the questionnaire. All information gained will be coded and computer analysis will be carried out on the whole group, not individual responses. Your participation in this project will result in no medical-legal risks, public embarrassment, or invasion of privacy. The results of the study will be made available to you by the investigator upon request.

Should you decide you do not wish to participate, or do consent but wish to withdraw from the study later, your relationship will not in any way be changed with your instructor or peer group since no one will know whether you fill out the questionnaire or not. You are free not to answer any particular question(s) or to withdraw from the study at any time. If you consent to participate in this study as outlined above, please sign in the space provided below.

The nature, demands, risks and benefits of the project have been explained to me and I understand what my participation involves. Furthermore, I understand that I am free to ask questions and withdraw from the project at any time without questions and withdraw from the project at any time without affecting my relationship with any institution or person.

Subject's Signature Date

I have carefully explained to the subject the nature of the above project. I certify that to the best of my knowledge the subject signing this consent form understands clearly the nature, demands, benefits, and risks involved in his participation in this study. A medical problem or language or educational barrier has not precluded a clear understanding of his or her involvement in this project.

Investigator's Signature Date

Witness's Signature Date

APPENDIX B

HUMAN SUBJECT CONSENT FORM: POST-TEST FORM

Dear Nursing Student:

I, Alison Stone, am conducting a study titled, "The Development of a Cognitive Instrument to Assess Nursing Students' Knowledge of Contraception". You are invited to participate in the validation of a questionnaire to determine nursing students' knowledge of contraception. The study consists of a 40 item multiple choice questionnaire which will require 30 to 40 minutes of your time. You will be asked to respond to questions concerning the method, practice, advantages, disadvantages, and effectiveness of the major forms of contraception. There are also seven questions asking some biographical data about yourself.

In order to assure confidentiality, study participants are not identified by name on the questionnaire. All information gained will be coded and computer analysis will be carried out on the whole group, not individual responses. Your participation in this project will result in no medical-legal risks, public embarrassment, or invasion of privacy. The results of the study will be made available to you by the investigator upon request.

Should you decide you do not wish to participate, or you do consent but wish to withdraw from the study later, your relationship will not in any way be changed with your instructor or peer group since no one will know whether or not you fill out the questionnaire. You are free not to answer any particular question(s) or to withdraw from the study at any time. If you consent to participate in this study as outlined above, please sign in the space provided below.

The nature, demands, risks, and benefits of the project have been explained to me and I understand what my participation involves. Furthermore, I understand that I am free to ask questions and withdraw from the project at any time without affecting my relationship with any institution or person.

Subject's Signature Date

I have carefully explained to the subject the nature of the above project. I certify that to the best of my knowledge the subject signing this consent form understands clearly the nature, demands, benefits, and risks involved in his participation in this study. A medical problem or language or educational barrier has not precluded a clear understanding of his or her involvement in this project.

Investigator's Signature Date

Witness's Signature Date

APPENDIX C

KNOWLEDGE OF CONTRACEPTION: 80 ITEM TEST

Directions: Select the one best answer for each question and mark on the corresponding answer sheet.

1. The oral contraceptive works by:

   1. causing the endometrium to produce sperm killing antibodies.
   2. preventing the release of the egg.
   3. absorbing an already fertilized egg.
   4. it is not really understood how it works, but possibly by acting as a local irritant and causing the egg to be moved along the fallopian tubes faster than normal.

2. Which of the following is an <u>absolute</u> contraindication to the use of oral contraceptives?

   1. hypertension.
   2. active hepatitis.
   3. habitual barbituate user.
   4. alcoholism.

3. The 20 and 21 day combination type pill is composed of:

   1. hormones and iron.
   2. estrogen and progestin in all the pills.
   3. estrogen only in the first 14 pills and progestin only in the remaining pills.
   4. estrogen and testosterone.

4. A woman taking the combination oral contraceptive pill for the first time should begin taking her pills:

   1. as soon as she receives the pills.
   2. on the fifth day of her period whether she is bleeding or not.
   3. on the first day of her menstrual cycle.
   4. on the last day of her menstrual cycle.

5. If a woman on oral contraceptive pills forgets one pill she should:

   1. take two pills the next day, one when she remembers and one at the regular time.
   2. take two pills for the next two days.
   3. restart the new pill cycle on the fifth day of her period.
   4. discontinue taking the rest of the package.

6. How soon after a woman starts taking the pill are they effective?

   1. one week after taking her first pill.
   2. immediately if taken on the fifth day of her menstrual cycle.
   3. after one pill cycle.
   4. after two weeks of taking the pills.

7. Oral contraceptive patients should be instructed to stop taking the pills and consult their doctor immediately if certain symptoms occur. Which of the following is <u>not</u> one of those symptoms?

   1. severe chest pain.
   2. pain in the calf or the thigh.
   3. failure of the blood to clot when the skin is cut or scratched.
   4. blurred vision or flashing lights.

8. Which of the following are possible side effects of the oral contraceptive?

   A. nausea
   B. weight gain
   C. breast tenderness
   D. loss of hair
   E. menstrual spotting between periods

   1. A and B only.
   2. A,B,C, and D.
   3. A,B,C, and E.
   4. All of the above.

9. If breakthrough bleeding occurs while a woman is taking oral contraceptives she should:

   1. discontinue taking the pills, since this indicates intolerance to the pill.
   2. stop taking the pills, but resume them on the fifth day of bleeding.
   3. continue taking the pills as usual and consult her doctor if the bleeding persists.
   4. take two pills a day until the bleeding stops.

10. A woman who is taking the pill exactly as instructed is protected against pregnancy:

   1. during the three weeks when she is taking the pills containing estrogen and progesterone only.
   2. throughout her cycle, even during her period.
   3. during her entire cycle, except for the time between the 8th and 18th days when ovulation may occur.
   4. none of the above.

11. Which of the following concerning oral contraceptives is responsible for most pill-associated complications and most of the minor side effects?

   1. progestin component of the pill.
   2. failure of the patient to follow the prescribed regimen.
   3. age of the woman.
   4. estrogen component of the pill.

12. If a woman using oral contraceptives misses a period she should:

   1. call her physician immediately.
   2. start her new package of pills at the regularly scheduled time.
   3. stop the pills and have a pregnancy test.
   4. take two pills for the first five days of the new pill cycle.

13. Women over 40 years of age should not use oral contraceptives because of:

   1. increased incidence of thrombembolic disorders.
   2. increased incidence of myocardial infarcts.
   3. increased incidence of hypertension.
   4. increased incidence of gallbladder disease.

14. The incidence in the number of pill complications increases with:

    1. duration of use.
    2. number of pregnancies.
    3. with the age of the woman.
    4. with higher estrogen level oral contraceptives.

15. Which of the following is not a non-contraceptive benefit of the oral contraceptives?

    1. minimization of menstrual cramps.
    2. decrease in the number of days of menstrual bleeding.
    3. increase in stamina.
    4. decrease in iron deficiency anemia.

16. The mechanism of action of oral contraceptives is primarily:

    1. supression of ovulation.
    2. a non-bacterial inflammation of the endometrium.
    3. formation of mucus growth on the ovaries.
    4. unfavorable tubal environment.

17. Which of the following is not one of the other anti-fertility factors associated with the mechanism of action of oral contraceptives?

    1. creation of cervical mucus hostile to sperm.
    2. change in the amino acid structure of sperm.
    3. an unfavorable endometrium for pregnancy.
    4. an unfavorable tubal environment for pregnancy.

18. A young woman may begin oral contraceptives when:

    1. she has regular intercourse.
    2. she has had one year of regular menstrual cycles.
    3. when she has been menstruating for at least one year.
    4. she has her first pelvic examination.

19. The minor side effects of oral contraceptives usually subside after:

    1. one month of use.
    2. 3 months of use.
    3. 6 months of use.
    4. 12 months of use.

20. Estrogen should not be prescribed for the immature female because its use:

    1. inhibits lactation.
    2. hastens epiphyseal closure.
    3. alters the menstrual cycle.
    4. encourages promiscuous sexual activity.

21. Which of the following theories is most often accepted to explain the action of the IUD?

    1. prevents release of an egg.
    2. has a chemical effect on the sperm.
    3. causes local non-bacterial inflammation of the endometrium.
    4. causes cramps which abort the fertilized ovum.

22. The best time to insert an IUD is:

    1. during menstruation.
    2. during the time when ovulation is expected.
    3. just before the menstrual period begins.
    4. three to four days after the menstrual flow has ceased.

23. A woman should check for her IUD string at certain times. Which of the following is <u>not</u> one of these times?

    1. once a week for the first month after insertion.
    2. after each intercourse.
    3. after every period.
    4. whenever she has severe cramping.

24. A woman with an IUD which was recently inserted should use another method of contraception for the first several weeks because:

    1. the IUD never works alone.
    2. IUD's are 80% effective when used with foam.
    3. the risk of expulsion and pregnancy is higher the first few months the IUD is in place.
    4. the IUD is not effective until it becomes seated in the uterus.

25. Pregnancy may occur with the IUD in place because:

1. the woman forgot to douche after intercourse.
2. she neglected to check the string and did not know that the IUD was not in place.
3. there is about a 3 to 5% chance of pregnancy with an IUD in place.
4. the IUD may fail only if the device is spontaneously expelled from the uterus.

26. A woman can expel her IUD:

1. only during the first three months after insertion.
2. without knowing it.
3. only during her period.
4. only during strenuous exercise.

27. Three of the following are commonly reported side effects of the IUD. Which is <u>not</u>?

1. increased menstrual flow.
2. menstrual cramping.
3. mood changes.
4. spotting between periods.

28. Which of the following is a severe complication of the IUD?

1. paresthesia of the extremities.
2. uterine perforation.
3. breast cancer.
4. uterine prolapse.

29. A diaphragm must be checked for fit each time:

1. the patient gains or loses more than 15 pounds.
2. the patient becomes pregnant.
3. every year.
4. all of the above.

30. The diaphragm works by:

1. presenting a physical barrier to the sperm.
2. holding the spermicide in place.
3. both 1 and 2.
4. none of the above.

31. After intercourse the diaphragm should be left in place for at least:

1. six to eight hours.
2. four hours unless the woman douches after intercourse.
3. it can be removed immediately after intercourse.
4. no more than two hours.

32. The only sure way to know if a diaphragm is in place correctly is:

1. to ask the partner if he can feel it.
2. there is no way of correctly checking it.
3. if she can feel her cervix through the diaphragm.
4. if she can feel the diaphragm at the pubis symphysis bone.

33. Which of the following can safely be used to lubricate the condom?

1. intensive care lotion.
2. petroleum jelly.
3. mineral oil.
4. vegetable oil.

34. The condom must always be put on the penis:

1. before any contact between penis and vagina.
2. anytime before insertion.
3. anytime after the man achieves erection but before ejaculation.
4. as soon as the man gets undressed or into bed.

35. Which of the following is the most common reason for condom failure as a contraceptive?

1. defective condoms which have tiny holes or breaks.
2. improper storage.
3. improper use by patient.
4. not enough lubrication.

36. Condoms can be legally purchased by anyone over age:

1. 14
2. 16
3. 18
4. there is no age limit.

37. From which of the following VD's does the condom provide the most protection?

1. herpes genitalis.
2. syphilis.
3. gonorrhea.
4. none of the above, because the condom does not provide protection from VD.

38. When a couple is using a condom it is important to:

1. place it tightly and firmly on the erect penis.
2. leave half an inch of space at the tip.
3. always use lubricated condoms.
4. to obtain the right size.

39. After intercourse when using a condom, the man should:

1. let the condom slip off and remain in the vagina.
2. do nothing, as the still erect penis can maintain the placement of the condom.
3. hold onto the condom as the penis is withdrawn to prevent slipping.
4. none of the above.

40. The contraceptive effectiveness of the condom can be increased by:

1. using two or more at the same time.
2. the concurrent use of contraceptive foam.
3. using lubricated condoms.
4. using condoms with a tip at the end.

41. A vasectomy patient who asks about having the operation reversed can correctly be told:

1. that he can have it reversed anytime he wants.
2. that the operation is almost never reversible.
3. that no one can guarantee reversibility.
4. that the longer he waits the better his chances are of having a successful reversal procedure.

42. With regard to preventing pregnancy, a vasectomy is:

1. more effective than a tubal ligation.
2. less effective than a tubal ligation.
3. more effective than a hysterectomy.
4. about as effective as the pill.

43. After a vasectomy, sperm cells are:

1. no longer produces.
2. produced but in much smaller numbers.
3. produced as before and absorbed into the body.
4. drained from the scrotum annually.

44. A vasectomy affects a patient's sex life in the majority of cases:

1. by improving it.
2. by reducing sex drive due to less hormones.
3. by very little or no effect.
4. the effect is unknown.

45. A vasectomy is:

1. a general anesthetic procedure which is effective immediately.
2. a general anesthetic procedure which is effective only after a sperm count.
3. a local anesthetic procedure which is effective immediately.
4. a local anesthetic procedure which is effective only after a sperm count.

46. The prognosis for recovery from a vasectomy is that the patient needs how much rest?

1. 2 hours.
2. 12 hours.
3. 2 days.
4. 1 week.

47. The female sterilization procedure commonly called the "band-aid" surgery is:

1. laproscopy.
2. culcoscopy.
3. cystoscopy.
4. cryoprobic ligation.

48. The prognosis for full recovery from a tubal ligation is how long?

1. 12 hours.
2. 1 day.
3. 2 days.
4. 4 days.

49. The general anesthetic procedure for female sterilization which involves inserting a cauterizing instrument through a tiny incision is called:

1. colposcopy.
2. laproscopy.
3. cystocopy.
4. none of the above.

50. The typical cost of an outpatient tubal ligation is:

1. $200.
2. $400.
3. $600.
4. $1,000.

51. All of the following are methods of female sterilization except:

1. laproscopy.
2. hysterectomy.
3. colposcopy.
4. oophorectomy

52. Tubal ligation usually causes:

1. cessation of menses.
2. reduced hormone production.
3. earlier menopause.
4. none of the above.

53. Sterilization can be recommended except when:

1. pregnancy is absolutely contraindicated.
2. the patient is not married.
3. the patient wants to have the operation reversed later.
4. the patient is under 25 years of age.

54. A majority of married couples who want to use sterilization as a method of birth control choose:

1. tubal ligation.
2. vasectomy.
3. hysterectomy (simple)
4. total hysterectomy (uterus, tubes, ovaries).

55. A woman can be sterilized by:

1. removing the ovaries.
2. removing the uterus.
3. interrupting the fallopian tubes through which eggs travel from the ovaries to the uterus.
4. all of the above.

56. Tubal ligation performed via a laparatomy is a desirable sterilization procedure for women:

1. in the postpartum period.
2. who cannot tolerate general anesthesia.
3. who want no more than two children.
4. who have irregular menses.

57. The tubal ligation procedure involves:

1. the removal of the ovaries and oviducts.
2. the cutting and tying of the fallopian tubes.
3. the removal of the oviducts and uterus.
4. cauterization of the cervix.

58. The laproscopic approach of sterilization involves:

1. the cauterization or coagulation of the fallopian tubes.
2. the removal of the uterus.
3. the cauterization of the cervix.
4. the removal of the ovaries and fallopian tubes.

59. The laproscopic approach for sterilization is desirable for:

1. the nulligravidus woman and post abortion patients.
2. women who have had two or more children.
3. women who have a history of miscarriages.
4. none of the above.

60. A vasectomy is:

1. surgical removal of one or both testes.
2. the surgical cutting and tying of the bas deferens.
3. the collection and freezing of semen in a sperm bank.
4. a temporary method of birth control for men.

61. One advantage of the vasectomy procedure is:

1. its reversibility.
2. its increase in sexual desire in the man.
3. the short time required for the procedure.
4. the procedure does not require a physician.

62. A disadvantage of a vasectomy is:

1. that no more sperm are produced.
2. a man's decision for sterilization occurs later in the life cycle.
3. hospitalization for the procedure.
4. expensiveness of the procedure.

63. Failure of the vasectomy is usually due to:

1. recanalization of the ends of the vas.
2. unprotected intercourse before the reproductive tract is cleared of sperm.
3. division of a structure other than the vas.
4. all of the above.

64. After the vasectomy procedure the man:

1. may resume normal activities immediately, but should avoid heavy lifting for a few days.
2. must remain in the hospital for 24 hours.
3. should have intercourse immediately.
4. none of the above.

65. If a woman insists on using a non-prescription douche the recommendation is:

1. any of several commercial products.
2. lemon juice or white vinegar in water.
3. carbolic acid (H_2CO_3) in water.
4. the generic drug EDTA (ethylene diamine tetracetate), $NH_3C_24(C_2H_5))$ NH_3 available under brand names like Vagi-Clear and Because.

66. Douching is:

1. a poor recommendation because it contributes to vaginal infections.
2. a poor recommendation because it will not be done often enough to be effective.
3. a good recommendation for women who wish to prevent pregnancies.
4. is a good recommendation for women with unusually heavy menses.

67. Douching is a poor method of contraception because the sperm enter the uterus in large enough numbers to cause pregnancy within:

1. 15 seconds.
2. 30 seconds.
3. 90 seconds.
4. 3 minutes.

68. Douching works best as a contraceptive when the solution is:

1. below body temperature and slightly basic.
2. below body temperature and slightly acidic.
3. above body temperature and slightly acidic.
4. acidic, regardless of the solution's temperature.

69. Rhythm sometimes fails because ovulation occurs at an unexpected time. Which of the following will <u>not</u> effect the ovulation date:

1. diet.
2. illness.
3. travel.
4. exercise.

70. To calculate the fertile (unsafe) day in a normal menstrual cycle, a woman needs her menstrual history for:

1. 6 months.
2. 9 months.
3. 12 months.
4. 24 months.

71. The ovulation method or Natural Family Planning method is based upon predicting fertility by:

1. reading cervical mucous secretions.
2. reading vaginal pH changes.
3. reading the calendar and phases of the moon.
4. reading hormone concentration in the saliva.

72. A patient presents with this history: Age 22, married, menarche age 12, cyclic duration 28 days, nulliparous, nulligravidous, healthy normal vagina, cervix, vulva, and uterus, retrograde I. She wants to use calendar method rhythm. Her first and last unsafe days are:

1. 8 and 18.
2. 9 and 24.
3. 11 and 18.
4. cannot be determined from the information given.

73. Withdrawal is a safe contraceptive method for a couple to use during a second or third act of intercourse within a few hours because:

1. the male's sperm count is too low to cause pregnancy.
2. the male has more control the second time.
3. the male cannot achieve ejaculation for at least four hours after the first ejaculation.
4. all of the above are myths.

74. Coitus interruptus (withdrawal) is a poor method of contraception because of:

1. high failure rate.
2. lack of male control.
3. psychological side effects in both sexes.
4. all of the above.

75. Withdrawal fails sometimes due to leakage of sperm from the penis before ejaculation. The fluid which leaks is produced by the:

1. seminal vesicles.
2. prostate gland.
3. bulbo-urethral glands.
4. corpus cavernosa.

76. Although withdrawal is a poor method of contraception, it is better than nothing. How many times better?

1. 2.
2. 3.
3. 4.
4. 5.

77. Foam and cream:

1. provide fair protection for women against gonorrhea.
2. provide fair protection for the woman against vaginitis.
3. may cause allergic vaginitis.
4. are more effective when used with a condom.

78. Foam is about how effective as a method of contraception?

1. less effective than rhythm.
2. more effective than rhythm.
3. about as effective as the diaphragm.
4. about as effective as withdrawal.

79. Foam may be inserted up to how long before penetration?

1. 10 minutes.
2. 20 minutes.
3. 1 hour.
4. 2 hours.

80. Which of the following spermicides is most effective when used by itself for contraception?

1. cream.
2. foam.
3. jelly.
4. acidic douche.

APPENDIX D

KNOWLEDGE OF CONTRACEPTION: 40 ITEM REVISED TEST

Directions: Select the one best answer for each question and mark on the corresponding answer sheet.

1. The 20 and 21 day combination type pill is composed of:

   1. hormones and iron.
   2. estrogen and progestin in all the pills.
   3. estrogen only in the first 14 pills and progestin only in the remaining pills.
   4. estrogen and testosterone.

2. A woman taking the combination oral contraceptive pill for the first time should begin taking her pills:

   1. as soon as she receives the pills.
   2. on the fifth day of her period whether she is bleeding or not.
   3. on the first day of her menstrual cycle.
   4. on the last day of her menstrual cycle.

3. Oral contraceptive patients should be instructed to stop taking the pills and consult their doctor immediately if certain symptoms occur. Which of the following is <u>not</u> one of those symptoms?

   1. severe chest pain.
   2. pain in the calf or thigh.
   3. failure of the blood to clot when the skin is cut or scratched.
   4. blurred vision or flashing lights.

4. Which of the following are possible side effects of the oral contraceptive?

   A. nausea.
   B. weight gain.
   C. breast tenderness.
   D. loss of hair.
   E. menstrual spotting between periods.

   1. A and B only.
   2. A, B, C, and D.
   3. A, B, C, and E.
   4. All of the above.

5. Which of the following concerning oral contraceptives is responsible for most pill-associated complications and most of the minor side effects?

   1. progestin component of the pill.
   2. failure of the patient to follow the prescribed regimen.
   3. age of the woman.
   4. estrogen component of the pill.

6. Which of the following is <u>not</u> a non-contraceptive benefit of the oral contraceptives?

   1. minimization of menstrual cramps.
   2. decrease in the number of days of menstrual bleeding.
   3. increase in stamina.
   4. decrease in iron deficiency anemia.

7. The minor side effects of oral contraceptives usually subside after:

   1. one month of use.
   2. 3 months of use.
   3. 6 months of use.
   4. 12 months of use.

8. Which of the following theories is most often accepted to explain the action of the IUD?

   1. prevents release of an egg.
   2. has a chemical effect on the sperm.
   3. causes local non-bacterial inflammation of the endometrium.
   4. causes cramps which abort the fertilized ovum.

9. The best time to insert an IUD is:

   1. during menstruation.
   2. during the time when ovulation is expected.
   3. just before the menstrual period begins.
   4. three to four days after the menstrual flow has ceased.

10. A woman should check for her IUD string at certain times. Which of the following is <u>not</u> one of these times?

   1. once a week for the first month after insertion.
   2. after each intercourse.
   3. after every period.
   4. whenever she has severe cramping.

11. A woman with an IUD which was recently inserted should use another method of contraception for the first several weeks because:

   1. The IUD never works alone.
   2. IUD's are 80% effective when used with foam.
   3. the risk of expulsion and pregnancy is higher the first few months the IUD is in place.
   4. the IUD is not effective until it becomes seated in the uterus.

12. Which of the following is a severe complication of the IUD?

   1. paresthesia of the extremities.
   2. uterine perforation.
   3. breast cancer.
   4. uterine prolapse.

13. A diaphragm must be checked for fit each time:

   1. the patient gains or loses more than 15 pounds.
   2. the patient becomes pregnant.
   3. every year.
   4. all of the above.

14. The diaphragm works by:

   1. presenting a physical barrier to the sperm.
   2. holding the spermicide in place.
   3. both 1 and 2.
   4. none of the above.

15. The only sure way to know if a diaphragm is in place correctly is:

1. to ask the partner if he can feel it.
2. there is no way of correctly checking it.
3. if she can feel her cervix through the diaphragm.
4. if she can feel the diaphragm at the pubis symphysis bone.

16. Which of the following can safely be used to lubricate the condom?

1. intensive care lotion.
2. petroleum jelly.
3. mineral oil.
4. vegetable oil.

17. The condom must always be put on the penis:

1. before any contact between the penis and vagina.
2. anytime before insertion.
3. anytime after the man achieves erection but before ejaculation.
4. as soon as the man gets undressed or into bed.

18. Which of the following is the most common reason for condom failure as a contraceptive?

1. defective condoms which have tiny holes or breaks.
2. improper storage.
3. improper use by patient.
4. not enough lubrication.

19. From which of the following VD's does the condom provide the most protection?

1. herpes genitalis.
2. syphilis.
3. gonorrhea.
4. none of the above, because the condom does not provide protection from VD.

20. When a couple is using a condom it is important to:

1. place it tightly and firmly on the erect penis.
2. leave half an inch of space at the tip.
3. always use lubricated condoms.
4. to obtain the right size.

21. A vasectomy patient who asks about having the operation reversed can correctly be told:

    1. that he can have it reversed anytime he wants.
    2. that the operation is almost never reversible.
    3. that no one can guarantee reversibility.
    4. that the longer he waits the better his chances are of having a successful reversal procedure.

22. A vasectomy is:

    1. a general anesthetic procedure which is effective immediately.
    2. a general anesthetic procedure which is effective only after a sperm count.
    3. a local anesthetic procedure which is effective immediately.
    4. a local anesthetic procedure which is effective only after a sperm count.

23. The female sterilization procedure commonly called the "band-aid" surgery is:

    1. laproscopy.
    2. culcoscopy.
    3. cystoscopy.
    4. cryoprobic ligation.

24. The general anesthetic procedure for female sterilization which involves inserting a cauterizing instrument through a tiny incision is called:

    1. colposcopy.
    2. laproscopy.
    3. cystoscopy.
    4. none of the above.

25. All of the following are methods of female sterilization <u>except</u>:

    1. laproscopy.
    2. hysterectomy.
    3. colposcopy.
    4. oophorectomy.

26. Tubal ligation usually causes:

    1. cessation of menses.
    2. reduced hormone production.
    3. earlier menopause.
    4. none of the above.

27. A majority of married couples who want to use sterilization as a method of birth control choose:

1. tubal ligation.
2. vasectomy.
3. hysterectomy (simple).
4. total hysterectomy (uterus, tubes, ovaries).

28. Tubal ligation performed via a laparatomy is a desirable sterilization procedure for women:

1. in the postpartum period.
2. who cannot tolerate general anesthesia.
3. who want no more than two children.
4. who have irregular menses.

29. A disadvantage of a vasectomy is:

1. that no more sperm are produced.
2. a man's decision for sterilization occurs later in the life cycle.
3. hospitalization for the procedure.
4. expensiveness of the procedure.

30. Failure of the vasectomy is usually due to:

1. recanalization of the ends of the vas.
2. unprotected intercourse before the reproductive tract is cleared of sperm.
3. division of a structure other than the vas.
4. all of the above.

31. After the vasectomy procedure the man:

1. may resume normal activities immediately, but should avoid heavy lifting for a few days.
2. must remain in the hospital for a few days.
3. should have intercourse immediately.
4. none of the above.

32. If a woman insists on using a non-prescription douche the recommendation is:

1. any of the several commercial products.
2. lemon juice or white vinegar in water.
3. carbolic acid (H_2CO_3) in water.
4. the generic drug EDTA (ethylene diamine tetracetate), $NH_3C_24(C_2H_50)\ NH_3$ available under the brand names like Vagi-Clear and Because.

33. Douching works best as a contraceptive when the solution is:

1. below body temperature and slightly basic.
2. below body temperature and slightly acidic.
3. above body temperature and slightly acidic.
4. acidic, regardless of the solution's temperature.

34. Rhythm sometimes fails because ovulation occurs at an unexpected time. Which of the following will <u>not</u> effect the ovulation date?

1. diet.
2. illness.
3. travel.
4. exercise.

35. The ovulation method or Natural Family Planning method is based upon predicting fertility by:

1. reading cervical mucous secretions.
2. reading vaginal pH changes.
3. reading the calendar and phases of the moon.
4. reading hormone concentration in the saliva.

36. A patient presents with this history: age 22, married, menarche age 12, cyclic duration 28 days, nulliparous, nulligravidous, healthy normal vagina, cervix, vulva, and uterus, retrograde I. She wants to use calendar method rhythm. Her first and last unsafe days are:

1. 8 and 18.
2. 9 and 24.
3. 11 and 18.
4. cannot be determined from the information given.

37. Withdrawal fails sometimes due to leakage of sperm from the penis before ejaculation. The fluid which leaks is produced by the:

1. seminal vesicles.
2. prostate gland.
3. bulbo-urethral glands.
4. corpus cavernosa.

38. Foam is about how effective as a method of contraception?

1. less effective than rhythm.
2. more effective than rhythm.
3. about as effective as the diaphragm.
4. about as effective as withdrawal.

39. Foam may be inserted up to how long before penetration?

1. 10 minutes.
2. 20 minutes.
3. 1 hour.
4. 2 hours.

40. Which of the following spermicides is most effective when used by itself for contraception?

1. cream.
2. foam.
3. jelly.
4. acidic douche.

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