A SURVEY OF ATTITUDES TOWARD BIRTH CONTROL AND CONTRACEPTIVE PRACTICES OF WOMEN IN A COLLEGE COMMUNITY

BY

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INTRODUCTION

Studies have shown married couples often use ineffective methods of contraception or no methods at all for a multiple of reasons.[1,2] They may begin to use contraceptives more consistently than before they were married but may not necessarily resort to more effective methods.[3]

An estimated twenty percent of all births in the United States are unwanted by either husband or wife or both.[4] Furthermore, the number of unwanted births is inversely related to education and income.

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1. Pascal K. Whelpton, Arthur A. Campbell, John Patterson, Fertility and Family Planning in the United States, Princeton: Princeton University Press, 1966, pp. 17 to 20, 256.

2. Robert J. Wolff and Bella Z. Bell, "United States: Knowledge, Attitude, and Practices of Contraception Among Low-Income Women in Hawaii 1968," Studies in Family Planning (No. 56) August 1970, pp. 21 to 22.

3. Charles F. Westoff, Robert G. Potter, Jr., and Philip C. Sagi, The Third Child, Princeton: Princeton University Press, 1963, p. 50.

4. L. M. Hellman, P. A. Corfman, and F. N. Backles, "A Five-Year Plan for Population Research and Family Planning Services," Family Planning Perspectives (3:4) October 1971, p. 33.

Bumpass and Westoff considered the extent and implications of unwanted fertility in the United States and found women with less than high school education and less than $3,000 combined annual incomes per couple had a much higher incidence of excess fertility than those with more formal education and higher combined incomes.[5] Swisher, in his survey of 1,288 women of childbearing age in Morgantown, West Virginia, found the "marital status of women plays an important role in their choice of a contraceptive method."[6] Perceived effectiveness was the most important factor influencing the choice of method for married women in the study sample. Some researchers have shown that education had no effect on the choice of methods used.[7]

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5. Larry Bumpass and Charles F. Westoff, "The Perfect Contraceptive Population," Science (169:3951) September 1970, p. 1179.

6. Basil Gene Smith Swisher, "A Survey of the Attitudes of Women of Monongalia County, West Virginia, Toward the Use of Contraceptives," Unpublished M.S. Thesis, West Virginia University, 1970, pp. 36 to 37, 40.

7. Ronald Freedman, American Studies of Family Planning and Fertility: A Review of Major Trends and Issues, Princeton: Princeton University Press, 1962, p. 220.

These findings are diffuse and contradictory and suggest there seems to be a lack of data that adequately reveal the incidence of use or nonuse of contraceptives by married couples.

A survey by Bauman of unmarried college students in a large Southeastern University disclosed much information on contraceptive practices and attitudes.[8] The study revealed sixty percent of the students used no reliable forms of contraception. A search of the literature indicates comparatively few studies on contraceptive practice and attitudes toward birth control have been done involving students.[9] It appears a significantly important segment of the American society in need of birth control services--the college community, has been largely overlooked.

According to the 1970 census, married students comprised one-fourth of the total college population in the United States. Klein reported "according to Mueller, a study made in 1955 showed some 21 percent

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8. K. Bauman, "Selected Aspects of the Contraceptive Practices of Unmarried University Students," American Journal of Obstetrics and Gynecology (108:2) September 1970, pp. 203 to 208.

9. G. Hollis and K. Lashman, "Availability of Family Planning Services in Colleges and Universities," paper presented at the 1973 Annual Meeting of the American Statistical Association, New York City, December 27 to 30, 1973. Family Planning Digest (3:6) November 1974, p. 1.

of the students in a group of eleven midwestern state universities were married and Schab, in May 1966, revealed about 24 percent of the total American college population belong to the married student group."[10] Unplanned pregnancies can work an extreme hardship on many student couples. Some must forsake their studies and others, already burdened with the multitude of stresses imposed by current academic life, frequently visit the offices of psychiatric units with varying degrees of emotional difficulties.[11]

The lack of pertinent literature on the attitudes toward birth control and birth control practices of married student couples in a well-defined socio-geographic area coupled with the apparent difficulties and emotional stresses of raising a family among students on limited incomes stimulated the interest in this study. The major purpose of the study is to evaluate the attitudes of a select sample of married women in a college community toward family limitation, and to ascertain the sources of information on the types of contraceptive methods

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10. Emmanuel Klein, M.D., "The Need for Family Planning as a Student Health Center Service," The Journal of American College Health Association (16:1) October 1967, p. 95.

11. L. Siddall and M. Cann, "Pregnancy on a University Campus," The Journal of the American College Health Association (21:3) February 1973, p. 246.

commonly in use amongst the study sample.

The study sample is designed to include a disproportionately large number of foreign students to help classify any differences in their attitudes toward birth control and contraceptive information sources vis-a-vis American respondents. Therefore, this study is directed towards the investigation of the following points of interest: 1) the extent of use or nonuse of various contraceptive methods (both past and present) among married student couples; 2) the preferred sources of contraceptive advice or information; 3) general attitudes toward birth control; 4) the relationship of contraceptive knowledge and type of contraceptives ever used and currently using; 5) other correlates of certain selected socio-economic factors with contraceptive practices or attitudes toward birth control; 6) a comparative evaluation of aspects of attitudes and contraceptive practices across national geographic regions of respondents; and 7) a comparison of the results of this study with the findings of a similar study in West Virginia where a different methodology was used to collect the data.

It is hoped the findings of this study will contribute in two ways: 1) to identify the need, if present, for information on birth control methods to married student couples, and 2) to determine the

need for more pharmacist active involvement in contraceptive counseling to needy patrons.

Definitions

For the purposes of the study, the terms used are defined as follows:

A "foreign student" is a foreign national holding a non-immigrant visa who is currently registered for the spring semester 1975/76 (January-May) at the University of Wisconsin, Madison, and who is not a citizen of Canada.

The "study population" is defined as all women of childbearing age (15 to 44 years) who are married and either she or her spouse or both are presently registered for the 1975/76 spring semester or otherwise associated with the University of Wisconsin, Madison, and residing with their husbands in the University Family Housing Unit at Eagle Heights.

Chapter II

REVIEW OF THE LITERATURE

A brief discussion of the historical development of family planning, types of contraceptive methods used in earlier and contemporary times will be followed by a discussion on the relative effectiveness of birth control methods. Literature on availability of family planning methods and fertility attitudes will be examined. In the last section, problems of interest in this study will be discussed.

Historical Development and Types of Contraception

Contraceptive practice dates back to remote antiquity. The oldest surviving documents on the subject come from Egypt in 1900 to 1100 B.C.. A sample prescription called for pulverized crocodile dung in fermented mucilage, combined with honey and sodium carbonate to be applied to the vulva.[1] The practice of coitus interruptus (withdrawal) is mentioned in

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1. C. Tietz, "History of Contraceptive Methods," Journal of Sex Research (1:2) July 1965, pp. 69 and 70.

Genesis (38: 8-9), as well as in the Talmud.[2] Absorbent materials, roots and herb potions, pessaries, and more permanent means of contraception were used by the Greeks and Romans and have been used subsequently by many peoples around the world.

Although it is interesting to explore and speculate about the predominant motivations for such measures in ancient and diverse cultures, there was never a concerted effort on the part of any society to limit population. The historical incentives for birth control were usually personal or idiosyncratic: slaves, prostitutes and illicit lovers tried to avoid pregnancy and other people sought to regulate the sizes of their families for various reasons.[3] Such personal incentives continue to be important, but there is now mounting concern that entire nations and even humanity as a whole must urgently check the rapid increase in population.

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2. N. E. Himes, Medical History of Contraception, New York: Gamut Press, 1963, pp. 72 to 75.

3. Emily T. Douglas, Margaret Sanger: Pioneer of the Future, Holt, Rinehart and Winston of Canada, Limited, 1970, pp. 63 to 69.

The alarm was first sounded by the English economist and sociologist, Thomas Robert Malthus (1766 to 1834).[4] His thesis was simply that given the geometrical increase of populations and the arithmetical increase of the means of subsistence, poverty and hunger are unavoidable unless war, famine and disease take their toll time and again. Although Malthus' original predictions have not yet been realized, the population explosion problem continues to be of great concern to the whole world. Malthus' warnings spurred the beginnings of the birth control movement in England. During the past century this movement gained great momentum. The movement gradually developed into the Planned Parenthood Association. Two of its outstanding leaders have been women: Marie Stopes in England[5] and Margaret Sanger in the

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4. J. Peel and Malcolm Potts, Textbook of Contraceptive Practice, Cambridge University Press, New York, 1970, pp. 1 to 16.

5. Marie E. Kopp, Birth Control in Practice, Arno Press and The New York Times, New York, 1972, p. 31.

United States.[6,7]

In 1958, the Lambert Conference of England vigorously endorsed the use of contraceptives to control family size.[7] In the United States, similar action was taken in 1961 by the National Council of Churches, representing many Protestant denominations.[8] The Roman Catholic Church has, on moral and doctrinal grounds, remained rather firm in its opposition to birth control by any means other than natural methods--rhythm and abstinence.

Use of Contraceptives in The United States

Information on the practice of contraception in the United States was collected in late 1965 as part of the National Fertility Study.[9] This study,

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6. A. Stone and N. E. Himes, Practical Birth Control Methods, Ruskin House--George Allen and Unwin Ltd., London, 1960, pp. 31, 36, 70.

7. Oscar A. Ornati, "Some Perspectives on Population Policy," Family Planning Perspectives (2:2) March 1970, pp. 50 to 56.

8. Richard M. Fagley, The Population Explosion and Christian Responsibility, Oxford University Press, London, 1970, pp. 207 and 208.

9. Charles F. Westoff and Norman B. Ryder, "United States: Methods of Fertility Control 1955, 1960 and 1965," Studies in Family Planning (No. 17) February 1967, pp. 2 to 4.

like two previous ones in 1955 and 1960, was based on personal interviews with a representative national sample of married women. The data showed ninety-seven percent of the respondents had used or were expecting to use some method of contraception in the future.

Oral contraceptives (the "Pill") was licensed for sale in the United States in 1960 and by 1965 it had become the single most popularly used method of contraception.[10] Adopted mainly by younger more educated non-Catholic white women, its acceptance by Catholic and nonwhite women followed close behind.[10] The introduction of the pill resulted in diminishing use of the diaphragm, the condom and rhythm methods of contraception. The use of the douche and withdrawal remained relatively constant between 1955 and 1965 but declined by 1970. The IUD (intra uterine device) gained popular usage in the middle to late 1960's and this contributed to the decline in the use of less effective methods.[11]

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10. C. F. Westoff and N. B. Ryder, Op. Cit., p. 1.

11. M. D. Glass, N. G. Kase, Woman's Choice, Basic Books, Inc.: New York, 1970, pp. 41, 53, 56.

Effectiveness of Contraceptive Methods

The effectiveness of contraceptive methods is classified in the literature into theoretical effectiveness and use-effectiveness. Theoretical effectiveness refers to the anti-fertility action of a contraceptive method under ideal conditions. Use-effectiveness refers to the protection achieved with the method under real life conditions taking into account manifestations of human frailty.

Theoretical effectiveness is not accessible to direct measurement since "ideal conditions" cannot, as a rule, be verified for human beings. Use-effectiveness can be quantitatively evaluated in terms of failure rates per 100 woman-years of exposure.[12,13] Both Raymond Pearl (1932)[14] and R. G. Potter (1963)[15] proposed formulas for quantitatively computing the use-effectiveness of contraceptive methods currently in use.

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12. V. E. Johnson and W. H. Masters, "Intravaginal Contraceptive Study: Anatomy," West J. Surg. Obstet, Gynec. (70:1) 1962, p. 202.

13. V. E. Johnson and W. H. Masters, "Intravaginal Contraceptive Study: Physiology," West J. Surg. Obstet, Gynec. (71:3) 1963, p. 144.

14. R. Pearl, "Contraception and Fertility in 2,000 Women," Hum. Biol. (4:3) September 1932, p. 363.

15. R. G. Potter, "Additional Measures of Use-Effectiveness of Contraception," Milbank Mem. Fund Quart. (41:4) 1963, p. 409.

Different failure rates based on use-effectiveness have been reported. Some studies report the more widely used methods ranked in descending order of their theoretical effectiveness, theoretical effectiveness being estimated on the basis of "all available information."[16] The most effective is ranked first and the least effective put last.

Tietz, an often quoted authority on contraceptive effectiveness, has grouped the most commonly used methods according to their relative effectiveness as follows:

GROUP ONE: MOST EFFECTIVE METHODS

In this group are included the Pill (combined and sequential forms), temperature rhythm, which is the determination of ovulation by means of basal body

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16. C. Tietze, "Effectiveness, Acceptability and Safety of Modern Contraceptive Methods," Proceedings of the World Population Conference, Belgrad (Vol. 2) United Nations, New York, 1967, pp. 305 to 308.

tempterature and rigid restriction of coitus to the postovulatory phase.

GROUP TWO: HIGHLY EFFECTIVE METHODS

These include the intrauterine devices (IUD's), the diaphragm used with cream or jelly, and the condom. The high effectiveness of the condom has been reported in different studies.[17-20]

GROUP THREE: LESS EFFECTIVE METHODS

In this group belong the family of chemical contraceptives for vaginal application without the simultaneous use of the diaphragm, calendar rhythm,

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17. Carl Djerassi, "Birth Control After 1984," Science (169:3949) September 1970, p. 947.

18. G. Hardin, Population, Evolution and Birth Control, W. H. Freeman and Co.: San Francisco, 1969, pp. 104 to 108.

19. C. Tietz, The Condom as a Contraceptive, National Committee on Maternal Health, New York, 1960, pp. 16 to 17, 38.

20. C. Tietz and C. J. Gamble, "The Condom as a Contraceptive Method in Public Health Work," Human Fertility (9:1) 1944, p. 97.

and coitus interruptus.[21,22,23,24]

GROUP FOUR: LEAST EFFECTIVE METHODS

Here belong the post coital douche and prolonged breast-feeding.

Failure rates associated with various methods range from a low of two pregnancies per 100 women per year for administration of the combined Pill and 2.7 pregnancies per 100 for various types of IUD's to failure rates of up to 10 pregnancies with the diaphragm (used alone) and for some vaginal contraceptives.[16,17,19,20]

Based on a literature review on relative effectiveness of contraceptive methods, for the purpose of this study, methods offering good protection include the Pill, IUD, condom and steriliza-

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21. J. T. Dingle and C. Tietz, "Comparative Study of Three Contraceptive Methods: Vaginal Foam Tablets; Jelly Alone; and Diaphragm with Jelly or Cream," Amer. J. Obstet, Gynec. (85:8) 1963, pp. 1012 and 1013.

22. M. A. Fisher, "A Local Authority Contraceptive Clinic: A Survey of Its Effectiveness," Med. Officer (110:4) 1963, p. 175.

23. R. K. Stix, "Birth Control in a Midwestern City," Milbank Mem. Fund Quart. (17:1) 1939, pp. 69, 152, 392.

24. C. Tietz and S. Lewit, "Comparison of Three Contraceptive Methods," J. Sex Research (3:4) November 1967, p. 302.

tion. Those offering some protection are the cream, jelly or foam, diaphragm, rhythm and withdrawal. The douche is considered as offering no protection.

Availability of Contraceptives

Swisher noted that marketing of contraceptives started in the early 1800's.[25] In England, advertising of condoms resulted in increased use of the condom for birth control in that country.[26] The involvement of the private sector in contraceptive distribution has been extensively discussed by Potts and Wood as a means of remedying the inaccessibility of modern contraceptives in both developed and underdeveloped countries.[26] In the United States, and other developed nations, commercial distribution account for most of the contraceptive supply to users. Family Planning clinics and affiliates are responsible for a small fraction of the distribution. In the poorer nations, Planned Parenthood Federation programs distribute supplies to approximately eight percent and Government

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25. Basil Gene Smith Swisher, "A Survey of the Attitudes of Women of Monongalia County, West Virginia, Toward the Use of Contraceptives," Unpublished M.S. Thesis, West Virginia University, 1970, p. 6.

26. M. Potts and C. Wood, New Concepts in Contraception, University Park Press: Baltimore, 1972, pp. 69 to 94.

programs are responsible for fifty-two percent of the supplies.[27] Although programs may start people on contraceptives, individuals rarely continue to seek their supplies regularly from these sources.

Market surveys indicate about 70 percent of contraceptive users in less developed countries obtain their contraceptives from existing commercial retail outlets without much restriction.[27,28] Condoms can be purchased in most such countries from a pharmacy, sundries shop, general store, or the street vendor. The Pill, although requiring a prescription by law in many underdeveloped and some developing countries, can in fact be obtained without prescription as is true of other ethical drugs.

In the United States, restrictions on the advertising of condoms in some states have limited the distribution of this contraceptive device. The result is that condom usage in the United States has lagged behind Europe and Japan where aggressive

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27. T. Block, "Rationale for the Involvement of Private Sector Marketing Institutions in Family Planning," Studies in Family Planning (4:2) February 1973, pp. 25 to 32.

28. J. L. Simon, "A Huge Marketing Research Task - Birth Control," Journal of Marketing Research (5:1) February 1968, pp. 21 to 27.

marketing techniques are used to promote and distribute condoms in the two countries. In the United States and Europe, Pills are purchased only on prescription through the pharmacy or clinics. Consequently, the manufacturing companies devote most of their detailing effort to informing physicians of their products. The marketing effort is directed towards the medical profession and not to the consumer directly. In the developing nations, an effort is made by manufacturers through their agents to detail the medical profession as well as to inform the pharmacist.

In India and Pakistan extensive distribution of condoms at subsidized retail prices is achieved through the existing commercial network to reach the local communities and the poor. In the People's Republic of China, the Pill is distributed by "barefoot doctors."

If population growth rates are to be reduced by voluntary family planning alone, a major effort, well beyond the capacity of the health service systems, will be required. Contraceptive marketing programs through commercial distributive outlets appears to offer one way of supplementing the limited clinical capacity.

Attitudes Toward Family Planning

The Indianapolis Study[29] and the results of the American Families Study[30] indicate that economic status, religious beliefs, education and social norms are all significant factors influencing the use of birth control or limitation of family size. Freedman, et al., found a preference for 2, 3, or 4 child families among their respondents.[31] Although religious beliefs had a significant effect on family limitation practices and attitudes, it was not as important a factor as education. The proportion of families practicing family limitation increases as family income increases. Studies have also shown a good majority of married women approve of the general idea of family limitation under some conditions.[32]

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29. P. K. Whelpton and Clyde V. Kiser, "Social and Psychological Factors Affecting Fertility," Milbank Memorial Fund Quarterly (1:1) 1946, pp. 16 to 44.

30. P. K. Whelpton andC. V. Kiser, "Social and Psychological Factors Affecting Fertility," Milbank Memorial Fund Quarterly, (2:3) pp. 305 to 322.

31. R. Freedman, P. Whelpton, and A. Campbell, Family Planning Sterility and Population Growth, McGraw-Hill, New York, 1959, pp. 6 and 7.

32. Ibid., p. 8.

Public attitudes toward birth control have been shaped over the years by cultural norms and values, religious prescriptions, the mass media and undaunted efforts of the Population Centres. Legal restrictions in some states have created problems of inaccessibility and dissemination of information concerning birth control methods. Although birth control is now legal in the United States, there still exist restrictions in some states on advertising of contraceptives. Some states do not have any specific law on the subject of contraception and no state enforces any law to prohibit married persons from obtaining contraceptives. However, in a few states, unresolved problems remain that affect the sale of contraceptives to the unmarried and to minors.[33]

An increasing number of states, far from imposing restrictions on birth control, expressly empower and/or require their departments of health and welfare to make contraceptives and contraceptive information available to the public./ In the late 1950's about forty-four states were officially sup-

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32. Ibid., p. 8.

33. G. Lipson and D. Wolman, "Polling Americans on Birth Control and Population," Family Planning Perspectives (4:1) January 1972, p. 39.

porting contraceptive services in one way or another.[32] Contraceptive services are now included as part of public health programs. In wording, some state laws are prohibitive, but specifically make an exception for physicians, pharmacists and other professionals. In others, the only legal obstacle to unrestricted dissemination of contraceptives is a prohibition against advertising. Some provide that the distribution of contraceptives to the public can only be through medical and licensed pharmacy channels.

The attitudes of the public toward the constitutional issues affecting the distribution of contraceptives are reflected in litigations challenging the constitutionality of state laws prohibiting the use and advertising of contraceptives.[33,34,35] A considerable amount of regulation still

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34. H. F. Pilpel and M. F. Wechsler, "Birth Control and the Law: A New Look 1971," Family Planning Perspectives (3:3) July 1971, pp. 38 to 42.

35. Grisvold vs. Connecticut, 381 U. S. Ct. 479 (1965).

applies to non-prescription methods of contraception.[36,37]

Feminist movements have played major roles in effecting public attitudes toward family planning and in the liberalizing trend in state legislation relating to birth control and birth control methods.[33] Adverse publicity via the mass media and the Food and Drug Administration (FDA) pronouncements on the side-effects of the Pill and the IUD have contributed to high discontinuance rates for these methods of contraception.

Earlier in this report some problems associated with contraceptive distribution were discussed. One solution to the limited clinical distribution of contraceptives is to bypass the clinics. The pharmacy has several advantages over the clinic as a supply source--anonymity, better service, no waiting, and no pelvic probing. Despite their poverty, a significant minority of clinic dropouts have been reported to

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36. "Baird vs. Wisconsin," Opinion and Power (71-C-254) 1974.

37. Davis vs. United States, "Intervening Change in Law as a Non-Constitutional Ground for Federal Collateral Relief," (417 U.S. Sup. Ct. 333) 1974 in Columbia Human Rights Law Review (7:1) Spring to Summer 1975, pp. 389 to 403.

prefer to get their contraceptives from the pharmacy.[38]

Pharmacists have been reported to be minimally involved in family planning. Recently, the stated professional stance of pharmacists has shifted from that of noninvolvement to action as a concerned professional.[39] Through the decade of the 1950's, professional literature in large part disclaimed participation by the pharmacist in family planning activities.[40] Roffman, et al., assert "recognition of the role over-the-counter contraceptives (condoms, foams, spermicidal creams, and jellies) can play in fertility control has stimulated interest in their practices concerning the sale and display of non-prescription contraceptives."[40]

Studies demonstrate that pharmacists in Hawaii,

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38. J. M. Stycos, "Latin American Family Planning in the 1970's," Published in Proceedings of the Inter-American Seminar on Population and Health, June 24-29, 1973, Airlie Press, Virginia, p. 25.

39. Anon., "Pharmacists Inactive as Family Planning Leaders," Family Planning Digest (1:2) July 1972, p. 1.

40. D. M. Roffman, E. E. Speckman and N. I. Gruz, "Maryland Pharmacists Ready for Family Planning Initiative," Family Planning Perspectives (5:4) Fall 1973, pp. 243 to 247.

Pennsylvania, Tennessee, Washington, New York, Maryland and Utah all virtually approve the sale of contraceptives to married persons and a substantial majority approve sales to unmarried minors.[40-42] Hastings and Provol report that in the 1960's the American Pharmaceutical Association advocated more professional involvement of its members in family planning activities. Today pharmacists recognize their role as distributors of contraceptives and their potential as sources of technical information on family planning techniques.[43]

On account of the reported liberalizing trend in pharmacists' attitudes toward family planning and their willingness to get more involved in family planning activities, it is worthwhile to study the

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41. D. W. Hastings and G. E. Provol, "Pharmacists' Attitudes and Practices Toward Contraceptives," Journal of the American Pharmaceutical Association, (NS12:2) 1972, pp. 74 to 81.

42. N. N. Wagner, R. P. Millard and R. J. Pion, "The Role of the Pharmacist in Family Planning," Journal of the American Pharmaceutical Association (NS10:5) 1970, pp. 258 to 260.

43. Report of the Policy Committee on Public Affairs, House of Delegates, American Pharmaceutical Association annual meeting held in Boston in July 1973. Family Planning Perspectives (5:4) Fall 1973, pp. 243 to 247.

contraceptor's perceptions of the pharmacist as an acceptable and authoritative source of contraceptive advice.

Development of the Problem

Basic to this study is the assumption that being married and living with husbands, women can be expected to be sexually active, thus exposed to the risk of conception. They are faced with a decision to prevent or not to prevent conception. Since sexual behavior is likely to be more frequent and regular among married than unmarried women, no control on this variable is necessary. Restriction of the study to married women eliminates the need to control marital status for possible differences in social influence.

Recent information on contraceptive practices of women was provided in a nationwide survey conducted by Applied Management Science, under an FDA contract.[44] The women surveyed asked for more information on the side effects of the Pill. Other study findings noted increasing concerns with IUD's and both male and female surgical sterilization techniques. The questionable safety and mortality risks of the most effective known contraceptives today--the Pill and the IUD--have received

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44. P.M.A. Newsletter (17:16) November 17, 1975, p. 6.

widespread publication and discussion among the general public. The controversy has been so intense that Dr. Christopher Tietz of the Population Council has published a comparative analysis of the mortality risks associated with various forms of contraception. His finding was that the "risk is very low for the major methods of fertility control."[45]

Just recently three companies voluntarily removed their sequential oral contraceptive pills from the market.[46] Reasons cited by the FDA for removal of the three products from the market include a higher risk of blood clotting than with combination pills as well as for reasons of a potentially higher risk of uterine cancer.[46]

FDA had proposed requiring manufacturers of oral contraceptives to include in the mandatory patient labelling and the patient brochure a warning effective January 1976 that "oral contraceptives are of no value in the prevention or treatment of venereal disease."[46]

The Agency asserted "that lay persons are uninformed on this subject and may be misled into believing that oral contraceptives prevent venereal disease." Reports in the medical literature affirm an association between females taking oral contraceptives

45. P.M.A. Newsletter (18:3) January 23, 1976, p. 2.
46. P.M.A. Newsletter (18:8) March 1, 1976, p. 2.

and an increase in venereal disease; the incidence of blood clots and the threat of thrombo-embolic disorders and other serious side effects among females on long-term pill administration have also been reported.

These expositions are likely to instill fear and apprehension in females who ever used or are presently using these methods of contraception. The literature is replete with accounts of high discontinuance rates of the pill and IUD's. Since the pill and IUD are two of the most effective modern contraceptives commonly in use, adverse publicity on their use may influence the attitudes of women towards birth control methods. It is the belief of the investigator that a change in attitudes toward birth control in response to the labelling warnings and other adverse publicity on contraceptive usage will be reflected in a change in fertility control practices--from more effective to less effective methods or to nonuse of contraceptives. This wouldhave serious implications on fertility control and population problems. Ultimately the control of fertility rests with individuals and cannot be imposed upon them.

The questions which arise are: Who does use contraceptives and why? Do couples have families because they want them or because they do nothing to prevent conception? What is the extent of use or nonuse

of birth control methods among married student couples? What are their general attitudes toward family planning? What are their preferred sources of contraceptive information and which sources do they consider authoritative? Do they possess accurate or inaccurate knowledge regarding modern methods of contraception or no knowledge at all? What is the relationship between contraceptive knowledge and fertility practices? Which methods of contraception do they have most concerns about?

A review of the literature reveals that many cases of contraceptive 'failure' was due to misinformation or misuse of contraceptive methods. Pregnancy can be intentionally prevented in a variety of ways. No one method is suitable to all women or couples because of the variety of situations and problems that exist in today's society. Individual couples or females choose the method most suitable to them. This is often done without adequate counseling and sometimes misleading sensationalism in the press.

Although much has been written about contraceptive practices of women and their attitudes toward family planning, little has been done with student couples in a defined socio-geographic area. It is felt that since the married student population accounts

for about 25 percent of the total student enrollment in colleges and universities in the United States, their opinions on a world force like birth control are important. It is expected that many respondents because of their more than average education are cognizant of population problems and hold well-crystallized attitudes toward family size and family planning.

Research Hypotheses

To guide the study, the following hypotheses were postulated from the study objectives:

1. There is no difference in the perceived ideal family size due to religious preferences.

2. There is no difference in the preferred family size among respondents by national geographic region.

3. There is no relationship between the number of living children and the desired number of additional children.

4. There is no relationship between previous thought and discussion with spouse on family size and contraceptive practice (that is, attempt to control family size).

5. There is no relationship between knowledge of birth control methods and the use of effective methods.

6. There is no relationship between use of effective methods and professional sources of contraceptive information (professional sources include physician, pharmacist and family planning clinic).

Religious preference is one of the most important independent variables in most fertility and birth control studies. Catholic wives have often been found to expect to have more children altogether than Protestant wives and they (Catholics) are less favorable toward contraception.[47] They make less use of contraception and are more likely to use less effective methods (especially rhythm). A review of current literature reveals articles and documents by prominent Catholic theologians, laymen and women who have argued for a change in the Catholic teaching on birth control. Swisher disclosed religion was not one of the main reasons women responding to his survey gave for not wanting to use birth control methods, but it was mentioned ten times out of 649 reasons.[48] Morofka obtained similar results--lack of

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47. D. Callahan ed., The Catholic Case for Contraception, The Macmillan Company, Toronto, Ontario, 1969, pp. 1 to 19.

48. Basil Gene Smith Swisher, Op. Cit., p. 51.

the existence of birth control prescriptions.[49] In 1965 Westoff and Ryder found Roman Catholic couples most frequently used the church-approved method.[50] A resurvey of the same study group in 1969, after the issuance of the Papal Encyclical on birth control, showed a large increase in contraceptive users among married Catholic couples. These findings suggest a growing trend of women asserting their right of individual conscience in matters of birth control rather than accede to the norms of the church. Because of the importance of religious preferences, to attitudes toward birth control and birth control practices, it was decided to test if any difference exists in the perceived ideal family size of respondents in the study sample due to their religious preferences. This has significance in evaluating fertility control intentions of respondents. Therefore one of the hypotheses is that there is no difference in the perceived ideal family size due to religious preferences.

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49. Viola Julia Morofka, "Perspectives on Fertility Control, Social Influence, and Fertility Among Selected Low-Income Women," unpublished Ph.D. Dissertation, Case Western Reserve University, 1973, p. 82.

50. Westoff andRyder, Op. Cit., pp. 2 to 4.

The sample design includes couples from different cultural backgrounds. Therefore the hypothesis that there is no difference in the preferred family size among respondents by national geographic region is desirable to attest the influence, if any, of different cultural backgrounds on attitudes toward fertility.

The third hypothesis that there is no relationship between number of living children and the desired number of additional children was included to discover whether or not respondents had a well-formed attitude toward the concept of ideal family size. Evidence gleaned from the literature supports the notion that the number of living children is inversely related to the desire for additional children where a well-crystallized perspective on ideal family size exists.[51] To investigate the influence of the husband on contraceptive practices of the couple, the hypothesis that there is no relationship between previous thought and discussion with spouse on family size and contraceptive practice was formulated. The influence of husbands on attitudes toward family size and on the choice of contraceptives of their wives are well docu-

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51. Morofka, Op. Cit., pp. 92 to 97.

mented. Couples preferring small size families are more likely to be better motivated to use contraceptives more consistently than those preferring large families.

The next hypothesis sought to evaluate the knowledge of birth control methods and relate it to current contraceptive practices of respondents. Women who disclose accurate knowledge of the most commonly used contraceptive methods are more likely to be using more effective methods than those displaying poor knowledge. If users of ineffective methods are those disclosing inaccurate knowledge or no knowledge at all, a need for contraceptive information would thus be revealed. Doran asserts that four out of fourteen cases of contraceptive failure are due to misinformation or misuse of the method.[52] Steven Polgar has noted that knowledge transmitted to individuals does not ensure reception of accurate information.[53]

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52. C. M. Doran, "Attitudes of 30 American Indian Women Toward Birth Control," Health Services Reports (87:7) 1972, pp. 658 to 663.

53. Steven Polgar, "United States: The PPFA Mobile Service Project in New York City," Studies in Family Planning (No. 15) October 1966, p. 11.

Although most of the young women in the study reported some kind of formal sex education, Katner and Zelnik were surprised at the level of misinformation the respondents exhibited in group discussions.[54] These findings underscore the importance of assessing the accuracy of knowledge of contraceptive methods and its relationship to fertility practices. Lack of knowledge may be an important reason for large families.

The next hypothesis sought to test the relationship between the use of effective methods and general attitudes towards family planning. The purpose is to discern opinions on birth control and relate them to birth control methods adopted. Respondents approving of the concept of birth control are more likely to be users of more effective methods of contraception than those who disapprove of contraception.

To determine the importance of professional counseling on proper usage of birth control methods appropriate for individual couples, the following hypothesis was adduced: There is no relationship between the use of effective methods and professional sources of contraceptive information.

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54. J. F. Kantner and M. Zelnik, "United States: Exploratory Studies of Negro Family Formation--Common Concepts about Birth Control," Studies in Family Planning (No. 47) November 1969, p. 10.

Chapter III

METHODOLOGY

On the basis of the literature review on contraceptive practices of women and of the available techniques of attitude measurement, a mail survey method of data collection was conceptualized as the most feasible instrument for this investigation.

Data Collection Method

Questioning and observation are the two basic methods of collecting data in survey research. The questionnaire method was chosen because the problems this study attempts to address can be studied only by questioning: knowledge, opinions, motivations, intentions and past events are usually not open to observation.

Telephone and personal interviews were precluded because of the personal nature of the information sought and the need for assurance of anonymity. Mail questionnaires have been shown to be generally superior to either telephone or personal interviews in collecting data on topics that might

be embarrassing to respondents.[1] Also it was believed the mail questionnaire would achieve the most efficient use of the time and money available for the investigation. Finally, it was believed that a mail questionnaire would provide the best instrument from the standpoint of assuring uniformity in the format of the responses and of controlling bias. It also would facilitate analysis of the data. It is recognized that the use of a mail questionnaire involves certain disadvantages or problems. There are questions on the accuracy of data collected and the inherent problems of non-response. The section on cover letter and questionnaire construction will deal with the effects to minimize these disadvantages.

Data Collection Form

The questionnaire used in this investigation was derived mostly from "The Population Council: Short KAP Survey Questionnaire,"[2] "The IUSSP Model

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1. D. D. Knudsen, H. Pope and D. P. Irish, "Response Difference to Questions on Sexual Standards," Public Opinion Quarterly (31:2) Summer 1967, pp. 290 to 297.

2. The Population Council: A Manual for Surveys of Fertility and Family Planning: Knowledge, Attitudes, and Practice, Key Book Service, Inc.: Connecticut, 1972, pp. 1-1 to 1-22.

Questionnaire for Comparative Fertility Surveys,"[3] and pertinent portions of the Swisher questionnaire.[4]

A four-page questionnaire was developed.[5] The cover letter preceded the questions and appears on the first page of the questionnaire. The purpose of the study was explained and care was taken not to convey the desirability of one type of response over another. That is, the cover letter explained there are no right or wrong answers. This was designed to stimulate a high completion rate and to reduce non-response bias. In general, the cover letter used a friendly, personal tone and solicited the cooperation of the respondents.

Appeal to the importance of the respondents' answers was intended to interest the study group in the investigation. Because of the personal nature of the information sought, confidentiality of their responses was guaranteed. The identity of the investigator was disguised to avoid possible biases

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3. Ibid., pp. 2a-3 to 2a-34.
4. Basil Gene Smith Swisher, Op. Cit., p. 62.
5. Please see Appendix A.

that might result from those who knew the investigator. These factors were thought to have a major effect on the response rate and quality of responses. The School of Pharmacy letterhead was used to show official sponsorship of the project. Market survey research has shown official sponsorship indicated by letterhead, stamped instead ofmetered postage both ways, first class postage both ways and personalized salutation increase the response rate.[6]

The first question dealt directly with the subject matter of the investigation. Information on ideal family size, number of living children and the number of additional children desired was sought in questions one through three. These preceded questions on attitudes toward birth control, questions four through seven. Respondents were requested to express their beliefs, opinions or feelings on four statements pertaining to birth control according to the degree of their agreement or disagreement with each statement. Questions eight and ten sought to assess the respondents' knowledge of birth control methods. Respondents were

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6. S. D. Bachrack and H. M. Scoble, "Mail Questionnaires Efficiency: Controlled Reduction of Nonresponse," Public Opinion Quarterly (31:2) Summer 1967, pp. 265 to 271.

requested to indicate the level of effectiveness and proper time for usage for each method of contraception.

Each accurate response was awarded a score of one point and a score of zero to inaccurate or "not sure" responses. A knowledge score was developed from a combination of responses on effectiveness of nine contraceptive methods in preventing pregnancy and 'when to use' of eight methods listed in the questionnaire (sterilization was eliminated from the 'when to use' response).[7] A summated total points of seventeen are possible for accurate responses to all the questions comprising the knowledge score. Responses to questions on the knowledge of contraceptive methods were categorized into: (1) good knowledge (11 to 17 points); (2) fair knowledge (9 or 10 points); and (3) poor knowledge (below 9 points). Morofka used a similar classification system.[8]

Respondents then were asked if they had previously thought about the number of children they want and whether or not they had discussed the desired

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7. Please see Appendix B.

8. Morofka, Op. Cit., p. 72.

number of children with their husbands. They were asked the sources of their contraceptive advice in the past and the sources they consider authoritative for contraceptive advice. Eight sources were listed in question eleven arranged in an alphabetical order. An "other category" was created to cover all possible responses. Respondents could check more than one source or none of the sources. To record 'past' and 'present' contraceptive practices, they were instructed to indicate out of eight listed methods, the contraceptives they ever used and are presently using.

Most of the questions were structured and nondisguised. The only open-ended question is number thirteen where respondents were asked to list methods of contraception they have strong concerns about and that they would never want to use. Market researchers show data obtained in structured, nondisguised format are easier to tabulate and interpret and produce more reliable results than data gathered in other types of questionnaires.[9] This is because errors

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9. Harper W. Boyd and Ralph Westfall: Marketing Research Text and Cases, Richard D. Irwin, Inc. 3rd ed. 1972, pp. 136 to 142.

of classification and interpretation of responses are reduced considerably.

Some classification data requested were put at the end of the questionnaire. Such information might embarrass and irritate the respondents if requested at the beginning. The age, nationality, formal educational level of respondents and their spouses, income and religion were needed to classify respondents. No identification was requested because anonymity was considered important to the survey.

No pretests of the questionnaire were done since it was developed from authentic and tested instruments used in population and fertility studies sponsored by the Population Council. However, opinions of the members of the investigator's Graduate Examination Committee were sought on the clarity and salience of the questionnaire. Amendments resulting from the recommendations of this group were utilized in the final preparation of the questionnaire.

Sample Design

The preferred study population is defined as all married women of childbearing age (15 to 44 years) who or whose spouse or both are presently registered for the 1975/76 spring semester at the University of Wisconsin--Madison, and who are living together with

their husbands. A problem was how to select a representative sample from such a universe. The unavailability to the researcher of current student list classified by marital status predicated the need to restrict the study population to married student couples residing at the Eagle Heights University Family Housing Units. Therefore the study population was redefined as all women of childbearing age (15 to 44 years) who are married and who or whose husband or both are currently registered for the 1975/76 spring semester at the University of Wisconsin - Madison, and residing at the University Family Housing Unit at Eagle Heights, Madison. A complete enumeration of the study group was attempted.

The sample design reflects an optimal allocation of resources in relation to the study objectives. The primary objective is to evaluate the attitudes toward birth control and birth control practices of married student couples in a well-defined socio-geographic area. A secondary objective is to classify the responses of foreign student couples and compare them with their American counterparts.

The possible limitation of this study is the generalization of the study findings beyond the limits of the study design. Caution is advised in interpreting

the findings of this study. While acknowledging certain limitations of the study, justification for the study design can be made on methodological grounds. The study sample has certain advantages. By using a homogeneous sample, variability due to extraneous factors is decreased.

Being married and living with husbands, women are expected to be sexually active, thus exposed to the risk of conception. They have the option to prevent or not to prevent conception without social disapproval. Because sexual behavior is likely to be more frequent and regular among married than unmarried women, no control on this variable is necessary. It is also assumed that fertility control is more likely to be personally relevant to married women living with their husbands than to others who are less exposed to the risk of conception. Restriction of the study group to married women eliminates the need to control on marital status for possible differences in social influence. It was considered less embarrassing to married women to be asked questions on their birth control practices than to unmarried, separated, or divorced women.

A current list of Eagle Heights residents obtained from the University Family Housing Office

(Eagle Heights Maintenance) was used to address the questionnaires. Questionnaires were mailed to 1039 women on the list on February 17, 1976, post-metered. An addressed, postage-paid envelope was enclosed for the return mail. One month was allowed for circulation of the questionnaires and a cut-off date for the return mail was March 16, 1976. A response rate was computed on a daily basis before a decision on the cut-off date was taken.

Of the 1039 questionnaires mailed, 588 usable questionnaires were returned for a response rate of 56.6 percent. Six hundred and two women responded to the mail survey. Fourteen responses were eliminated from analysis because they were ineligible.

Seven were from divorced women. Two women were over forty-four years of age, one respondent was not married, and four questionnaires were unusable because of incomplete responses. Therefore, the final sample size for the study was 588. Eight questionnaires were received after the cut-off date and were not included in the analysis. A check on the pattern of responses of these late returns plus returns from March 1 through March 11 was made. No significant bias in the survey returns were noted. It was concluded that those who did not return completed questionnaires before the cut-off date probably did not differ

significantly from those who returned the questionnaires early. A breakdown of the returns computed on a daily basis is shown below.

Date	No. of Questionnaires Returned	Percent of Total
February 19, 1976	1	0.2
February 20, 1976	294	48.8
February 21, 1976	101	16.8
February 23, 1976	39	6.5
February 24, 1976	54	9.0
February 25, 1976	38	6.3
February 27, 1976	14	2.3
February 28, 1976	14	2.3
March 1, 1976	8	1.3
March 2, 1976	15	2.5
March 3, 1976	9	1.5
March 4, 1976	4	0.7
March 5, 1976	4	0.7
March 8, 1976	2	0.3
March 9, 1976	2	0.3
March 10, 1976	1	0.2
March 11, 1976	2	0.3
TOTAL	602	100.0%

Machine Processing

The returned questionnaires were recorded and edited. They were checked as to their completeness and correctness of responses. Useable responses were sorted and coded. Each usable response was numbered serially from 001 to 588. Columns one and three on each card were reserved for identification.

For example, 001 was coded on these columns for the first questionnaire, 002 for the second

questionnaire and so forth. Each response to a question was coded on one column. Two columns were assigned where the possible number of responses to a particular question exceeded nine. Consistency in the coding process attempted to ensure a clear interpretation of the codes across all responses.

Upon an examination of the data, consultations were made with statisticians and computer programmers at the Madison Academic Computing Center (MACC), University of Wisconsin, and a computer program named TRANSI was selected to analyze the data.

Chapter IV

THE RESULTS

Before reporting the major research findings, it is desirable to present background data on the 588 women in the study sample to establish a frame of reference for the findings.

Background Characteristics

The ages of the respondents (in years) ranged from twenty to forty-four. The mean (average) age was 27 years with a standard deviation of 4.1, and the median age was 26 years. The age distribution of the women in the study sample is shown in Table 1. The computer program grouped the ages of the respondents as shown in the Table.

Table 1

FREQUENCY DISTRIBUTION OF THE AGES OF THE RESPONDENTS

Age Groups (in Years)	Number of Respondents	Percent of total (N=588)
20 to 24	198	33.7
25 to 29	276	46.9
30 to 34	83	14.1
35 to 39	22	3.7
40 to 44	9	1.6
TOTAL	588	100.0%

Thus the ages of women in the study sample was not normally distributed being skewed to the right. A majority of the respondents (80.6 percent) were from 20 to 29 years of age. However, the research questions do not depend upon a sample with a normal age distribution.

Data on the educational level of the respondents are shown in Table 2. The respondents were requested to check their formal school classification and that of their husbands. Three respondents did not report their educational level and ten women failed to report the educational level of their husbands. Of the 585 respondents, about 33 percent reported they had completed their college education and about six percent had only high school education. Of the 41.6 percent presently in college, 31.5 percent were graduate students

and about 10 percent were undergraduate students.

Table 2

FORMAL SCHOOL CLASSIFICATION OF RESPONDENTS AND THEIR HUSBANDS

Formal School Classification	Respondents		Husbands	
	Number	Percent	Number	Percent
Some high school	9	1.5	--	--
High school	36	6.2	--	--
Some college	58	9.9	--	--
College	195	33.3	--	--
Undergraduate	59	10.1	18	3.1
Graduate	184	31.5	481	83.2
Other	44	7.5	79	13.7
TOTAL	585	100.0%	578	100.0%

About 83 percent of the 578 respondents supplying information on their husbands educational level reported their husbands were graduate students. There was a relatively high percentage (13.7 percent) reporting their husbands' educational classification as 'other'. In the coding process, the researcher had included post-doctoral people and 'special students' in the 'other' category. For purposes of this study, the educational levels of the respondents' spouses were believed not important to the study findings.

The economic status of the respondents was another parameter observed. Table 3 shows that nearly one-half of the couples had a yearly income over $6,999 and less than six percent had a yearly combined income of under $3,000 per couple. When it is recalled that one-third of the respondents had completed college education and were not in school at the time of this inquiry, it is not surprising that so many couples were earning $7,000 and above yearly incomes. However, over 49 percent of the respondents reported yearly incomes less than $7,000 per couple.

Table 3

ANNUAL COMBINED INCOMES OF COUPLES

Yearly Income	Number of Respondents	Percent
Under $3,000	34	5.8
$3,000 to $4,999	121	20.6
$5,000 to $6,999	134	22.8
Over $6,999	289	49.1
Not ascertained	10	1.7
TOTAL	588	100.0%

Religious preferences have been shown to be one of the important independent variables in fertility studies

of fecund women.[1,2,3]

Because women having different religious preferences were believed to differ in their ideal family size and attitudes toward birth control, the respondents were asked to indicate their religious preferences. Table 4 shows the frequency distribution of respondents according to their reported religious preferences.

Table 4

RELIGIOUS PREFERENCES OF RESPONDENTS

Religious Preference	Number of Women	Percent
Protestant	172	29.3
Catholic	141	23.9
Jewish	21	3.6
Other religions	97	16.5
None	147	25.0
No response	10	1.7
TOTALS	588	100.0%

1. Charles F. Weeloff, "Religion and Fertility in Metropolitan America," Thirty Years of Research in Human Fertility: Retrospect and Prospect, Milbank Memorial Fund, New York, 1959, pp. 117 to 134.

2. W. H. Grabill, C. V. Kiser and P. K. Whelpton, The Fertility of American Women, McGraw-Hill, New York, 1958, pp. 113 to 283.

3. V. J. Morofka, "Perspectives on Fertility Control, Social Influence, and Fertility Practices Among Selected Low-Income Women," unpublished Ph.D. Dissertation, Case Western Reserve University, 1973, p. 82.

An important classification characteristic for the research hypotheses is national geographical grouping of respondents. Respondents were asked to report their nationalities and these were grouped into six continental regions. Table 5 shows the respondents classified according to their reported regional geographic groupings.

Table 5

REGIONAL GEOGRAPHICAL GROUPING OF RESPONDENTS

Geographic Groups	Number of Women	Percent Distribution
Africa	22	3.7
Asia	75	12.8
Europe	49	8.3
Latin America	37	6.3
North America	393	66.8
Oceania (Australia and New Zealand)	7	1.2
No response	5	0.9
TOTAL	588	100.0%

It is noted in Table 5 that two-thirds of the respondents were United States and Canadian citizens while one-third were of 'foreign' citizenship. Enough respondents were observed in each geographic grouping to enable statistical tests to be performed.

Statistical Techniques

Six statistical techniques were employed in the analysis of the data. The first technique used was simple tabulation showing the frequency distributions of relevant sample characteristics. Chi-square analysis was used to determine whether a significant difference existed between the means of two or more sets of discrete data. The objective was to determine the maximum difference that normally could be expected to occur because of sampling variations. That is, if the differences among categories were significantly different than one would expect due to chance sampling error. If the measure of difference fell within 95 percent confidence level limits, then the difference was attributed to sampling variations and the research hypotheses were not rejected. But if the measure fell outside these limits, then the differences were believed real and the hypotheses were rejected.

An analysis of variance (ANOVA) test was used to determine sources (between groups or within group variations) of variations contributing more to the total variance. It was used in testing the differences in the ideal family size of respondents due to regional geographic groupings.

Attitude scores also were correlated with several measures in the questionnaire. For example,

each individual's attitude toward birth control was correlated with the usage of contraceptives. Each resulting correlation coefficient was a measure of the strength of the association found to exist between the two variables.

The t-test comparison tests were used where it was not desirable to make the assumptions of a normal population. It was considered a more powerful tool of analysis than the chi-square since very little is known about the study population.

The last statistical technique employed in this study is descriptive statistics. The technique was used to permit more lucid presentation of the study findings.

Specific Research Hypotheses

Ideal Family Size

Previous surveys show that women often have definite views on ideal family size. This study was no exception. When the 588 married women taking part in the survey were asked the question: "What number of children do you regard as an ideal family size?" less than five percent did not give a reply. Most of the women, 75 percent, said they considered a two- or three-child family to be ideal. About 52 percent opted for the two-child family and 23 percent for the three-child family. The only other family size to be

mentioned to any degree was the four-child family, which was considered ideal by 13 percent of the study sample. Three percent thought one child to be sufficient, and at the extremes only three percent considered five or more children ideal, and two percent opted for no children. The mean number of children considered ideal for all the respondents was 2.4, and the range was 0 to 7.

An analysis of the ideal family size reported by respondents by their stated religious preferences is shown in Table 6.

Table 6

IDEAL FAMILY SIZE CLASSIFIED BY RELIGIOUS PREFERENCES OF RESPONDENTS

	Ideal Family Size		
Religious Preference	Mean	Number of Respondents	Percent
Protestants	2.5	116	28.2
Catholic	2.9	129	22.0
Jewish	2.5	18	3.1
None	2.2	141	24.0
Other Religion	2.6	105	17.8
No response	--	29	4.9
TOTAL	2.4	588	100.0%

The Table shows that the Protestant group expressed the desire for fewer children (mean = 2.5)

than did the Catholics (mean = 2.9) or those categorized as 'other religions' (mean = 2.6). The fewest number of children was desired by those reporting no religious preference (mean = 2.2).

An analysis of variance test showed the differences in the mean ideal family size preferences between groups were significant at $\alpha = 0.05$.

An analysis of variance determined that there was a significant difference in preferred family size of respondents of various religions (Table 7). Further analysis indicated that the Catholic varied significantly from the Protestant or those having no religious preference.

Table 8 indicates the mean difference between groups and the significance probability.

The difference in the ideal family size of the Catholic respondents from the other groups could possibly indicate the influence of the Catholic Church teachings on birth control. Without doubt (significance probability = 0.000), the ideal family size perceived by the Catholic respondents differed significantly from those who have no religious preferences. The differences in the ideal family size perception of the Catholics also differed significantly (at $\alpha = 0.05$) from those of the Protestants and those of other religions. The Protestants also were significantly

Table 7

ANALYSIS OF VARIANCE TABLE FOR DIFFERENCES IN IDEAL FAMILY SIZE CLASSIFIED BY RELIGIOUS PREFERENCES

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	Significance Probability
Mean	3641.887	1	3641.88705	3851.21	.0000
Between Groups	33.681	4	8.42026	8.90	.0000
Within Groups	514.432	544	.94565		
TOTAL	4190.000	549			

Table 8

T-TEST COMPARISONS: MEAN IDEAL FAMILY SIZE OF VARIOUS RELIGIONS AND THEIR SIGNIFICANT PROBABILITIES

Religious Groups	None	Jewish	Protestant	Other Religions	Statistical significance =0.05
Group Mean	2.234	2.500	2.536	2.695	
Jewish	0.266				Mean Difference
	1.093				T-value
2,500	0.2750				Significance Prob.
Protestants	0.302	0.036			Mean Difference
	2.713	0.150			T-value
2.536	0.0069*	0.8810			Significance Prob.
Other Religions	0.461	0.195	0.159		Mean Difference
	3.569	0.779	1.268		T-value
2.695	0.0004*	0.4363	0.2055		Significant Prob.
Catholic	0.688	0.422	0.386	0.228	Mean Difference
	5.811	1.727	3.385	1.732	T-value
2.922	0.0000*	0.0848	0.0008*	0.0838	Significant Prob.

*Significant differences exist between groups at $\alpha = 0.05$

different from those expressing no religious preferences.

Considerations of the above analysis resulted in the rejection of the research hypothesis of no difference in the perceived ideal family size due to religious preferences. Therefore, it could be concluded that the religious preference was a significant factor in the perceived ideal family size reported by respondents participating in this survey. The ideal family size preference of the Protestant group was similar to those of the Jewish group.

National Geographic Regions

One of the study objectives was to obtain data on likely differences in the preferred family size of couples of different cultural backgrounds. Table 9 shows the mean number of children considered ideal analyzed by national geographic regions of respondents. Excluding 29 women who did not express an opinion, the mean ideal family size for all respondents was 2.57.

The highest average was noted among the African respondents (mean = 3.55) and the lowest among North Americans. It was speculated that there would be

Table 9

MEAN IDEAL FAMILY SIZE CLASSIFIED BY REGIONAL GEOGRAPHIC GROUPING OF RESPONDENTS

Geographic Groups	Ideal Family Size		
	Mean	Number of Respondents	Percent
Africa	3.545	33	3.7
Asias	2.521	73	12.4
Europe	2.562	48	8.2
Latin America	2.838	37	6.3
North America	2.493	369	62.8
Oceania (Australia and New Zealand)	2.700	10	1.7
No response	--	29	4.9
TOTAL	2.571	588	100.0%

differences in the perceived ideal family size among respondents of different national geographic regions. To test the null hypothesis of no difference, a chi-square analysis was performed by the computer. The test showed the differences were significant at $\alpha = 0.05$ significance level. An analysis of variance test indicated the variations between groups contributed more to the total variance than the variations within the groups. The results are shown in Table 10.

On the basis of this analysis, the research hypothesis of no difference in the perceived ideal

Table 10

MEAN IDEAL FAMILY SIZE CLASSIFIED BY NATIONAL GEOGRAPHIC REGIONS OF RESPONDENTS

Source of Variance	Sum of Squares	Degree of Freedom	Estimated Variance	F-Ratio	Significant Probability
Mean	3694.041	1	3694.04114	3877.42	0.0000
Between Groups	26.113	5	5.22251	5.48	0.0001*
Within Group	526.846	553	0.95271		
Total Variance	4247.0000	559			

*Significant at α = 0.05

family size by national geographic region of respondents was rejected.

Further analysis was done to determine the groups that differed significantly from each other. A t-test comparison of the mean ideal family size among different regional groups of respondents revealed that the African respondents differed significantly from all the other five groups (Table 11). The average preferred family size of Latin Americans in the study differed significantly from the Africans and North Americans. The rest were insignificant at the 95 percent confidence level. However, the results suggest that larger samples may yield statistically significant if not substantial differences.

Existing Family Size

As reported in the literature review, the preferred family size is usually a function of the number of living children in the family. For this study group there appears to be some relationship between the size of the ideal family and that of the existing family: the larger the size of a woman's existing family, the larger the ideal family tended

Table 11

T-TEST COMPARISONS: MEAN IDEAL FAMILY SIZE OF RESPONDENTS BY NATIONAL GEOGRAPHIC GROUPING

Geographic Groups	North America	Asia	Europe	Oceania	Latin America	Stat. Sig. = 0.05
Group Mean	2.493	2.521	2.562	2.700	2.838	
Asia	0.027					Mean Diff.
	0.219					T-value
2.521	0.8271					Sig. Prob.
Europe	0.069	0.042				Mean Diff.
	0.063	0.231				T-value
2.562	0.6439	0.8172				Sig. Prob.
Oceania	0.207	0.179	0.137			Mean Diff.
	0.661	0.545	0.405			T-Value
2.700	0.5089	0.5858	0.6854			Sig. Prob.
Latin America	0.345	0.317	0.275	0.138		Mean Diff.
	2.047	1.611	1.289	0.396		T-Value
2.838	0.0411*	0.1078	0.6921	0.6921		Sig. Prob.
Africa	1.052	1.025	0.845	0.845	0.708	Mean Diff.
	4.912	4.317	2.271	2.271	2.693	T-Value
3.545	0.0000*	0.0000*	0.0235	0.0235*	0.0073*	Sig. Prob.

*Significant at α = 0.05

to be. Table 12 shows the mean numbers of existing children classified by regional geographic groups of respondents.

Table 12

EXISTING FAMILY SIZE OF RESPONDENTS

Geographic Groups	Existing Family Size		
	Mean	Number of Respondents	Percent Distribution
Africa	1.6818	22	3.7
Asia	1.1600	75	12.8
Europe	0.9574	47	8.0
Latin America	0.9722	36	6.1
North America	0.6829	391	66.5
Oceania	1.1667	12	2.0
No response	--	5	0.9
TOTAL	0.82483	588	100.0%

The African respondents had the highest mean ideal family size and also the highest mean existing family size of all the respondents. The North Americans had the lowest of both the ideal family size and the existing family size. These survey results probably adduce some evidence of the validity of the data collected. It would be expected that if a woman had a high ideal family size, she may also have had a high existing family size. A woman who considered a no-child

family ideal would be expected to have no living children.

There are several possible explanations for these results. It may be that women increase the size of their families until their ideal is reached, or that the ideal is to some extent elastic and can increase as the size of the family increases, or increase to accommodate children born into the family. The relevance of the above statistics is better appreciated when the number of living children is cross-tabulated with the number of additional children desired. A research hypothesis of no difference between the two variables was postulated.

When the 588 women in the study sample were asked the question: "Do you have any living children? If yes, how many? do you want to have any (more) children? all the women replied. Most of the respondents (94 percent) said they had 0 to 2 children. Forty-eight percent had no living children, 30 percent had only one child and 16 percent had two children. One respondent (0.03 percent) reported she had five children.

On the other hand, about 70 percent of the respondents said they wanted 0 to 3 more children. Of this number, 8.5 percent wanted no more children, about 20 percent wanted one additional child and 32.7 percent wanted two more children. Only 8.5 percent

said they wanted three additional children. However, a surprising proportion of the respondents (26.2 percent) said they would like to have five or more (additional) children.

The average number of existing family size for all respondents is less than one (0.82) and the range was from 0 to 5. The average number of additional children wanted was 3.3 and the range was 0 to 8.

Chi-square test showed the existing family size is not independent of the number of additional children desired. Table 13 has the observed frequencies.

Table 13

NUMBER OF CHILDREN IN EXISTING FAMILY VS. NUMBER OF ADDITIONAL CHILDREN WANTED*

Existing Family	Number of Additional Children						
	0	1	2	3	4	5 or more	Total Row
0	42	7	133	35	13	50	280
1	3	83	44	15	5	28	178
2	5	19	12	0	2	56	94
3	0	8	3	0	1	15	27
4	0	1	0	0	2	4	7
5	0	1	0	0	0	1	2
Total Column	50	119	192	50	23	154	N = 588

*Bivariate statistics for counts

Chi-square (with cont. corr.) = 246.60 with 25 degrees of freedom P = 0.05

Therefore, the hypothesis that there is no relationship between the number of living children and the desired number of additional children was rejected.

To further determine the degree of this relationship, correlation analysis of the two variables was done and the computer printout is reproduced in Table 14. The computer printout reproduced below includes other variables which will be discussed later.

Table 14

CORRELATION COEFFICIENTS FOR IDEAL FAMILY SIZE, EXISTING FAMILY SIZE, NUMBER OF ADDITIONAL CHILDREN, KNOWLEDGE, USAGE AND ATTITUDE.

Variable Name	1	2	3	4	5	6
1. Ideal family size	1.000					
2. Existing family size	.185	1.000				
3. Additional children	-.096	.280	1.000			
4. Knowledge of contraceptives	-.066	-.204	-.054	1.000		
5. Contraceptive usage	-.090	-.157	-.064	.777	1.000	
6. Attitude toward birth control	-.283	-.063	.099	.082	.094	1.000

Table 15

T-TRANSFORMATIONS SIGNIFICANCE MATRIX FOR VARIABLES IN TABLE 14 SHOWING THE SIGNIFICANCE PROBABILITIES (P VALUES)*

Variable Name	1	2	3	4	5	6
1. Ideal family size	.000*					
2. Existing family size	.000*	.000*				
3. Additional children	.020*	.000*	.000*			
4. Knowledge of contraceptives	.108	.000*	.189	.000*		
5. Contraceptive usage	.029*	.000*	.123	.004*	.000*	
6. Attitude toward birth control	.000*	.129	.016*	.047*	.023*	.000*

*p values $\leq$ 0.05 are significant at 95 percent confidence level.

Table 14 shows there was a positive correlation between existing family size and the number of additional children wanted. This relationship is significant at 95 percent confidence level (Table 15).

The correlation coefficients are valid. The reliability coefficients (those along the diagonals) correlate higher ($r = 1$) than the inter-correlation coefficients which are consistently lower. Therefore, internal consistency is evidenced.

Attitude Towards Family Planning

A Likert-type attitude scale consisting of four items was developed for the survey questionnaire. The scale can be found in Appendix A. A Likert scale requires the respondent to state the degree to which he agrees or disagrees with statements (items) about the attitude object (in this study family planning). In general, the larger the number of items in the scale, the more reliable it will be a measure of attitude toward the object. What the investigator attempted to do was construct a scale which included items which measured some of the most important aspects of attitude toward family planning. The item statements were selected from "The Population Council: Short KAP Survey Questionnaire."[4]

An estimate of the reliability of the attitude scale could be made by computing coefficient Alpha. Coefficient Alpha is an estimate of the correlation of a given scale with all other scales purporting to measure the same thing. This estimate was not done in

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4. The Population Council: A Manual For Surveys of Fertility and Family Planning: Knowledge, Attitudes, and Practice, Key Book Service, Inc.) Connecticut, 1972, pp. 1-1 to 1-22.

this study since the item scale was derived from an authoritative and tested source. However, it is recognized that failure to do this introduces some limitations on the results of this study. Therefore, caution is advised in interpreting the results.

Scores on the 4-item attitude scale could range from a possible low of 4 to a high of 20. If an individual responded with a "3" to each attitude item (a point midway between the strongly agree--strongly disagree end points), then her attitude score would be 12. While one cannot say for certain that 12 is a true neutral point for this scale, it would seem plausible to suggest that scores above 12 represent general agreement with the concept of family planning, while scores below 12 represent general disagreement with that concept.

The mean (average) attitude score for the sample of 588 married women was 16.2 with a standard deviation of 2.7. The standard deviation is a method of showing how far the scores tend to vary from the mean. A small standard deviation means that all the scores tend to cluster rather closely about the mean, while a large standard deviation means that the scores tend to be spread out from the mean. In this case, the standard deviation of 2.7 means that approximately 68 percent of women responding had attitude scores which

fell in the range 13.5 to 18.9. About 90 percent of the women responding had attitude scores which fell in the range 13.5 to 18.9. About 90 percent of the women reporting had attitude scores greater than 12 while only 10 percent had attitude scores below 12. This would seem to indicate rather general acceptance of family planning on the part of the respondents.

Table 16 shows the mean and range of the attitude score for each item in the attitude scale.

Table 16

MEAN SCORES ON ATTITUDE ITEMS

Attitude Items	Mean	Minimum	Maximum	Number of Respondents
1. Small families are preferred if you are to provide fully for the children that you have.	4.0	1	5	580
2. A woman's health will suffer if she has too many children.	3.3	1	5	579
3. Birth control helps a couple like my husband and me to lead a happy married life.	4.2	1	5	584
4. Nowadays some married couples practice some form of birth control to keep from having more children than they want. Generally speaking do you approve or disapprove?	4.6	1	5	586
TOTAL	16.2	7	20	

Knowledge of Contraceptive Methods

Knowledge of birth control methods might not insure contraceptive usage, but lack of such knowledge could act as a barrier.

As reported earlier, a knowledge score was developed from a combination of responses on effectiveness of nine contraceptive methods in preventing pregnancy and 'when to use' each of the methods listed in the questionnaire (please see Appendix B). A maximum of 17 total points is possible for accurate responses to all the questions comprising the knowledge score. A minimum possible total points of zero means wrong responses to all the questions.

The mean (average) knowledge score for all the respondents (N = 588) was 11.4 with a standard deviation of 3.3. This would seem to indicate that in a general sense, a majority of the study sample possessed good knowledge of contraceptive methods.

To make the presentation easy to follow, the next table shows the percent of respondents giving the right responses to the two aspects of the knowledge score--'effectiveness' and 'when to use' contraceptive methods. The other details of the breakdown of the responses are omitted for clarity. Table 17 shows the respondents generally scored higher on 'when to use' questions than on the 'effectiveness' associated with the methods.

Table 17

FREQUENCY DISTRIBUTION OF 'RIGHT' RESPONSES TO THE 'EFFECTIVENESS' AND 'WHEN TO USE' OF CONTRACEPTIVE METHODS

Methods	Effectiveness			When to Use		
	Number Checking Right Responses	Percent*	Total Number of Respondents	Number Checking Right Responses	Percent	Total Number of Respondents
Douche	403	69.8	577	402	74.6	539
Cream, Jelly or Foam	423	72.9	580	521	90.5	576
IUD	422	73.1	577	516	87.7	575
Diaphragm	504	87.0	579	434	75.3	576
The Pill	552	95.3	584	520	89.2	583
Rhythm	331	57.3	578	481	84.7	568
Withdrawal	227	39.7	572	444	78.2	563
Condom (Rubber)	223	38.3	582	554	95.2	582
Sterilization	509	88.1	578	--	--	--

*The percentages are based on total number of respondents giving a reply. It excludes no response category. Each figure represents the percent of those replying who checked the right response.

Variable number of the respondents replied to the knowledge test on each method. The percentages were based on only those responding to the question on each method.

When those who did not answer the knowledge questions are excluded, data in Table 18 show the rank order of the methods in decreasing order of the percentage of respondents showing adequate knowledge of these methods.

Table 18

PERCENT OF RESPONDENTS INDICATING ACCURATE KNOWLEDGE OF SPECIFIC METHODS OF FAMILY PLANNING

Method	Percent
The Pill	92.3
Sterilization	88.1
Cream, Jelly or Foam	81.7
Diaphragm	81.2
IUD	80.4
Douche	72.2
Rhythm	71.0
Condom	66.8
Withdrawal	59.0

The above table shows the best known method of family planning among the respondents was the Pill and

the least known method was withdrawal. About one-third of the respondents (33.2 percent) disclosed inaccurate knowledge of the condom. Except for the Diaphragm and the Pill, the respondents scored higher on the 'when to use' aspect than they did on the effectiveness. There appears to be some need for better education on the relative effectiveness of most commonly used methods of contraception.

Usage of Family Planning

Of the 588 married women responding to the questionnaire, about 8 percent were not using any form of contraception at the time of this inquiry. Not all these couples, however, would be classified as nonusers since included in this figure are women already pregnant, women wishing to become pregnant, and sterile couples.

Table 19 shows the methods in current use and the percent of women adopting the methods.

The most frequently mentioned method was the Pill, which was being used by 31 percent of the respondents. Second was the condom being used by 20 percent and 14 percent each were using the IUD and the diaphragm. The only other method mentioned to any degree was the cream, jelly or foam method which was being used by 12 percent of the respondents.

Table 19

PERCENT OF WOMEN CURRENTLY USING VARIOUS MEANS OF CONTRACEPTION

Method	Percent Using*	Percent Not Using
Condom	20	80
Withdrawal	3	97
Rhythm	4	96
The Pill	31	69
IUD	14	86
Cream, Jelly or Foam	12	88
Diaphragm	14	86
Douche	1	99
None at all	8	92
Base: all married respondents (= 100%)	N = 588	N = 588

*This column adds up to more than 100 percent as some couples were using more than one method.

An interesting observation emerged when the current usage was compared with past usage.

Table 20

PERCENT OF WOMEN REPORTING PAST USE COMPARED WITH PRESENT USAGE

Method	Past use(percent)	Present use(percent)	Difference
The Pill	77	31	46
Withdrawal	35	3	32
Condom	51	20	31
Cream, Jelly or Foam	40	12	28
Rhythm	28	4	24
Diaphragm	25	14	11
IUD	24	14	10
Douche	5	1	4
None at all	12	8	4
Base: all married respondents (= 100%)	N = 588	N = 588	N = 588

These columns add up to more than 100 percent as some couples used more than one method.

The Pill was the most frequently mentioned method ever used in the past and in present use. Conversely the douche method of contraception ranked lowest both in the past and present usage. In the past, as well as present usage, the condom was the second most used method of contraception.

An interesting but surprising trend was the decline in the use of all methods ever used in the past. It would appear the respondents tended to shift methods. The highest decline was evidenced in the use of the Pill, followed by withdrawal, condom, cream, jelly or foam, in that order. It is not clear whether the shift was away from the more effective to the less effective methods. The adverse publicity on the side effects of the Pill and the personal experience of some of the women might explain the high rate of discontinuance with the method. However, no significant conclusion can be made about the reasons for the observed trend as it was outside the scope of the study.

Concerns About Methods of Contraception

The women were asked, "Is (are) there any method(s) of birth control that you would never want to use?" This question attempted to elicit information on methods of contraception about which the respondents have the greatest concerns. A better approach would be to investigate further the specific concerns (or anxieties) about each method mentioned by the respondent. The scope of this study precluded such inquiry. The main research objectives were: (1) to determine the attitudes toward family planning

and the extent of use or nonuse of methods of contraception; and (2) to evaluate the preferred sources of contraceptive advise/or information among the study sample. It was assumed that the frequency with which methods were mentioned would reflect the degree of concern about the method.

About 20 percent of the respondents had no concerns about any method of contraception. Of the remaining 80 percent indicating some concerns, IUD ranked highest. It was mentioned 38 percent of the time. Next was withdrawal mentioned 36 percent of the time. Obviously the concern about the withdrawal method emanated from associating the method with ineffectivenes in the prevention of pregnancy. Since it is a male method of contraception, apparently the respondents were saying that the responsibility for contraception was theirs and they could not trust their husbands with that responsibility. One respondent wrote, "A man cannot be trusted to do this correctly." Rhythm, the Pill and condom were mentioned 31, 28 and 10 percent of the time respectively. The only other method mentioned to any reasonable extent was the use of the cream, jelly or foam method which was mentioned 12 percent of the time.

Relationship Between Current Usage and Knowledge of Contraceptive Methods

Most of the women in the study sample showed adequate knowledge of both clinical and non-clinical methods of contraception and had used the methods. However, some displayed inaccurate knowledge of the effectiveness associated with some methods.

What effect does one's knowledge of contraceptive methods have on the choice of contraceptive to be used? To answer this question, the relationship between current contraceptive usage and knowledge of contraceptive methods was examined. A null hypothesis of no relationship was postulated. A rank-correlation test determined a significant positive relationship existed ($r = 0.117$, $p < .005$).[5] The correlation means that there was a significant tendency for more accurate knowledge of contraceptives to be associated with the usage of more effective methods of contraception. Therefore, the hypothesis of no relationship between the two variables was rejected.

However, a lesser percent of the women disclosing accurate knowledge of contraceptives was actually

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5. Please see Tables 14 and 15, pp. 67 and 68.

using the method at the time of the inquiry. For example, whereas about 90 percent of the respondents showed adequate knowledge of the Pill as a method of contraception, only 20 percent reported presently using it.[6] A similar observation can be made for each method of contraception covered in this study.

Some speculation about the reasons for this discrepancy is appropriate. It may be that the women were dissatisfied with methods previously tried or adverse publicity against the major and more common methods of contraception could explain this decline in use. The objections to a particular birth control method may concern the method's reliability, harmfulness, discomfort in use or other undesirable side effects usually associated with the Pill and IUD.

Knowledge of a subject such as contraception could be obtained in two rather separate ways. In this study these were referred to as "professional" and "non-professional" sources. The term "professional" sources referred to information acquired from a family planning clinic, the pharmacist or the physician.

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6. Please see Tables 17 and 18, pp. 74 and 75.

"Non-professional" sources referred to sources such as friends, mother, father and books.

Relationship Between Professional Sources of Contraceptive Information and Contraceptive Usage

Respondents were asked, "Have you ever sought advice about birth control from any of the following sources?" and "Where do you think people should get advice about birth control?" Table 21 shows the responses to the above questions.

Table 21 shows about the same number of respondents who consider the physician the best source of contraceptive information, have sought the physician's advice in the past. Over twice as many people who have sought advice from the family planning clinic consider it an authoritative source.

More than three times the number of respondents who have sought the pharmacists' advice in the past consider it an authoritative source of contraceptive information. Married women in this study seem to know where they should go to get effective contraception information. Most said they should go to the professional sources of the physician, family planning clinic, or pharmacist.

The reason for the majority choosing the

Table 21

SOURCES OF CONTRACEPTIVE INFORMATION ANALYZED BY NUMBER OF WOMEN WHO HAVE SOUGHT ADVICE AND THOSE WHO CONSIDER THE SOURCES AUTHORITATIVE OR IDEAL FOR PEOPLE.

Sources of Information/ or Advice	Number Who Have Sought	Percent*	Number Who Consider it Authoritative	Percent*
Professional				
The physician	491	84	510	87
Family planning clinic	180	31	483	82
The pharmacist	43	7	133	23
Nonprofessional				
Books	426	73	380	65
Friends	249	42	144	24
Mother	93	16	191	32
Teacher/School	54	9	234	40
Father	27	5	129	22
Other Sources	72	12	64	11

*The percentages are based on total number of respondents answering the question on sources of contraceptive advice (N = 588). Respondents could check more than one source.

physician apparently derives from the perception of the respondents that the practice of effective contraception is difficult without the aid of the physician. However, the fact that 73 percent had sought advice from books, 42 percent from friends and 12 percent from other sources (the nurse was mentioned frequently as the other source) indicates the need for accurate and factual information on contraception. This need for more and accurate information on contraception is evidenced in the ready resort to any imaginable source of such information. The pharmacist as a member of the health team can help by providing complementary and supplementary counseling to the advice of the patient's physician.

In order to evaluate the relationship between sources of contraceptive advice and the use of contraceptive methods, a contingency test was employed. Chi-square tests showed the variables were independent at 95 percent conficence level. This means contraceptive usage is independent of sources of contraceptive advice for the study group.

Therefore, the research hypothesis that there is no relationship between the use of effective methods of contraception and professional sources of contraception information should not be rejected. The research design was weak in collecting data to test

this hypothesis. An oversight of the investigator resulted in a majority of the respondents (84 percent) reporting on the physician as a source of contraceptive information and concurrently reporting other sources of information too. It was not possible to stratify the respondents on the choice of contraceptive information source and this probably explains the lack of independence between the source and contraceptive usage. A better appraoch would be to rank-order the sources of contraceptive advice the respondents had used in the past so as to eliminate the conglomerate response.

Relationship Between Current Contraceptive Usage and Number of Living Children

The number of living children was a significant factor in the use of contraception. A rank-order correlation test showd (= -0.157 significant at = 0.05) more women without children tended to use effective methods of contraception than women with one or more children.

Table 22 shows the higher the number of living children, the more the proportion of women using ineffective methods of contraception. For example,

Table 22

RELATIONSHIP BETWEEN CURRENT CONTRACEPTIVE USAGE AND THE NUMBER OF LIVING CHILDREN

Contraceptive Usage	0	1	2	3	4	5 or more
Ineffective	137 (49%)	107 (60%)	67 (71%)	18 (67%)	4 (57%)	2 (100%)
Effective	143 (51%)	71 (40%)	27 (29%)	9 (33%)	3 (43%)	0 (0%)
Non-use	--	--	--	--	--	--
TOTAL	280 (100%)	178 (100%)	94 (100%)	27 (100%)	7 (100%)	2 (100%)

Chi-square (x^2) = 15.88 $p < 0.008$.

51 percent of the respondents having no living children were using effective methods of contraception. But only 43 percent of those with four living children were using effective methods of contraception and this difference was significant at $\alpha = 0.05$. It may be that respondents used effective methods of contraception primarily to delay the having of their first child. However, no definitive conclusion can be made from these results considering the number of respondents having more than 2 children--less than 10 percent--was relatively too small to draw any conclusions.

Chapter V

DISCUSSION AND CONCLUSIONS

This study was directed toward the identification of attitudes toward family planning and contraceptive practices of married women in a college community.

Six hundred and two of 1,039 women responded to a mail survey on attitudes and birth control methods. The usable sample size for the study was 588 yielding a response rate of 56.6 percent. The survey was conducted in February and March 1976, and was restricted to all women of childbearing age (15 to 44 years) who were married and who or whose husband or both were currently registered for the 1975/76 spring semester at the University of Wisconsin, Madison, and residing at the University Family Housing unit at Eagle Heights, Madison.

Respondents ranged in age from 20 to 44 years, with a mean age of 27. Almost 50 percent of the respondents reported yearly incomes under $7,000 per couple. About 33 percent of the respondents reported a college education, and 41.6 percent were presently in college--31.5 percent as graduate students and

about 10 percent as undergraduate students.

When the formal education level of the respondents in this study is compared to that of the respondents in the Swisher survey at West Virginia, it is noted that women in this study had a comparatively higher formal education.[1]

Swisher reported 43.7 percent of his respondents were high school graduates (6.2 percent in this study). There were 19.3 percent of the women in the West Virginia survey who were presently in college compared to 41.6 percent in this study. The previous study did not show the proportion of those presently in college who were graduate or undergraduate students. However, the proportion of respondents who had completed their college education in both studies was close. Nearly one-third (33 percent) of the respondents in this study fell in that category, and Swisher reported 26.7 percent in his study.

According to Swisher's study, 71.7 percent of the women in his sample were married.[2] This present

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1. Basil Gene Smith Swisher, "A Survey of the Attitudes of Women in Monongalia County, West Virginia Toward the Use of Contraceptives," Unpublished M. S. Thesis, West Virginia University, 1970, p. 30.

2. Ibid., p. 32.

study surveyed only married women (100 percent). Table 23 shows the percent distribution of married respondents in the Swisher study and the present study who were presently using various contraceptive methods.

Table 23

PERCENT DISTRIBUTION OF WOMEN USING VARIOUS CONTRACEPTIVE METHODS

Methods	Swisher Study (1970) Percent of 625	Present Study (1976) Percent of 588
Condom	14	20
Diaphragm	5	14
Other	2	--*
Rhythm	5	4
Withdrawal	5	3
Cream, Jelly or Foam	8	12
Pill	28	31
IUD	9	14
Douche	--*	1
None at all	26	8

* This method was not included in the questionnaire.

Although no statistical test was performed on the differences in contraceptive usage of the two study samples, from the percent distributions it is apparent

that respondents in the present study were using more effective methods of contraception. In a general sense, more respondents in this study were using some form of contraception (none-at-all 8 percent) than in the Swisher sample (none-at-all 26 percent). However, the none-at-all response category might include women who were already pregnant or wishing to get pregnant and thus not reflect the actual percent of respondents not wishing to use any birth control method.

In both studies, the Pill was found to be the most frequent method of contraception in both past and present usage. In both studies women were noted to change contraceptive methods. The contraceptive usage patterns show a decline frompast usage in the number of respondents presently using any specific method of contraception. Swisher reported, "Ranking second in the number of users among the married women was the condom with 85 or 13.6 percent users. The IUD was third with 58 or 9.3 percent of the women using it."[3] Of the 588 women represented in the present study, the condom ranked second in percent of

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3. Ibid., p. 37.

present users (20 percent) and diaphragm and IUD ranked third (14 percent each). Thus the choice of contraceptives for women in both studies compare favorably. Similar contraceptive behavior among both study groups could reflect the influence of married student life on the fertility behavior of women. Being in school and with limited resources, married student couples are apt to be users of more effective methods of contraception and may tend to seek information on contraception more actively than non-student couples.

Attitudes Toward Family Planning

The study findings indicate a majority of the respondents (about 90 percent) were favorably disposed toward the concept of family planning. A Likert-type scale was developed to measure attitudes toward family planning. About 90 percent of the respondents scored higher than 12 on a scale ranging from a possible low of 4 to a high of 20. The mean attitude score for the sample of 588 married women was 16.2 with a standard deviation of 2.7. The correlation coefficients for contraceptive usage and knowledge of contraceptive methods with attitudes toward family planning were statistically significant at

$\alpha = 0.05$.[4] Attitudes toward family planning was positively correlated with knowledge of contraceptives and with contraceptive usage.

The more favorable women's attitudes toward family planning, the greater their knowledge of contraceptive methods and the greater the tendency to use more effective methods of contraception. However, although knowledge is necessary for contraceptive usage, it is not sufficient to insure usage. In this study, some women using unreliable methods of contraception or none-at-all did possess knowledge of effective contraceptives. Knowledge may be viewed as an indicator of awareness and interest, but not, by itself, an indicator of adoption. It would seem that some other variables may operate for adoption to occur.

Morofka reported that in relation to other variables responsibility for fertility control appears to have the highest predictive value for current fertility practices.[5] The greater the acceptance of

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4. Please see Tables 14 and 15, pp. 67 and 68.

5. Viola Julia Morofka, "Perspectives on Fertility Control, Social Influence, and Fertility Practices Among Selected Low-Income Women," Unpublished Ph.D. Dissertation, Case Western Reserve University, 1973, p. 107.

of responsibility for fertility control by women or by women and their husbands, the greater is the probability of consistent use of effective methods of contraception.

Ideal Family Size

The mean number of children considered ideal for all the respondents was 2.4 and the range was from 0 to 7. This average derives mainly from a concentration on 2 (52 percent of women), 3 (23 percent) or 4 (13 percent) children as the ideal. When the ideal family size of respondents was classified by reported religious preferences, Catholic respondents had the highest ideal number of children (mean = 2.9) and those stating no religious preferences had the lowest average (2.2). The Protestant group had a mean ideal family size of 2.5. An anlysis of variance test showed the differences in the mean ideal family size preferences of the religious groups were significant at $\alpha = 0.05$. The data suggest religious influence is an important factor in fertility attitudes of women in this study.

The ideal family size preferences of respondents also were analyzed by their national geographic region. African respondents had the highest mean ideal family size (3.54) and the North Americans the

lowest (2.49). Thus the mean ideal family size for all the respondents (2.4) was similar to the statistic for the North American group (2.49). However, the mean ideal family size differences among respondents of different national geographic groups were statistically significant.

This result seems to illustrate there are distinct influences that appear to affect people's views on ideal family size. It may be that norms prevailing in the community in which a people were brought up could be a factor. In North America, it appears to be "acceptable" to have between two and three children. But in Africa and Latin America it would appear a larger family size is acceptable. The reasons given for expressing particular views about ideal family size may, of course, be rationalizations but they might indicate different perspectives on the concept of ideal family size. Some women might think of ideal family size as number of children for families with no particular worries about money or for families like themselves.

Sources of Contraceptive Advice

Respondents' current use of contraceptives was independent of sources of contraceptive information. The data revealed a majority of the respondents sought information from health professionals and the family planning clinic as well as from nonprofessional sources. Eighty-four percent of the respondents reported the physician as a past source of contraceptive information, 31 percent have sought information from a family planning clinic and 7 percent have sought information from the pharmacist. Other sources mentioned include books (73 percent), friends (42 percent), mother (16 percent), teacher/school (9 percent), father (5 percent) and other sources (12 percent).

Pharmacists have been shown in earlier studies to be reluctant to become actively involved in family planning programs partly because of legal restraints and partly because of ethical and personal considerations. This attitude of pharmacists on family planning could explain the low frequency with which respondents had consulted them in the past for advice on contraceptive methods. Recent discussions on the pharmacist's future role have centered on patient-oriented services and on expanded professional role.

Pharmacies are conveniently located and widely distributed and a greater percent of the respondents (about three times) than had sought the advice of the pharmacist in the past consider him an authoritative source of contraceptive information. If this percent reflects the true demand for the pharmacist service in family planning information distribution among married student couples, the opportunity for pharmacist involvement in this important role is great. Whether or not the pharmacist will seize this opportunity is a remote question, but family planning seems to be one of the roles demanding the pharmacist's professional involvement.

Conclusions

The study findings demonstrate that family planning is a generally accepted concept among married student couples and they possess adequate knowledge of the most commonly used methods of contraception.

Respondents who are more favorably disposed toward family planning have a greater tendency to use more effective methods of contraception and possess a better knowledge of contraceptives than those less favorably disposed.

Religious preferences and national geographic regions of respondents are important factors in their fertility attitudes.

The existing family size of respondents seem to influence the number of additional children wanted and their ideal family size preferences.

The Pill is the most preferred method of contraception and the second most preferred method is the condom. The douche apparently was not considered a method of contraception by most respondents and ranks lowest in the number of users.

Respondents seek knowledge from all sources of contraceptive information (both professional and non-professional sources) and the physician is considered the best source for contraceptive information.

However, the source of the respondent's contraceptive information is shown to be independent of contraceptive usage.

Evidence indicates a need for better contraceptive information, and more than three times the number of respondents consider the pharmacist an authoritative source of such information than have sought his advice on contraceptives in the past.

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APPENDIX A

CENTER FOR HEALTH SCIENCES
UNIVERSITY OF WISCONSIN-MADISON
MADISON, WISCONSIN 53706

SHCOOL OF PHARMACY
Pharmacy Building
425 North Charter Street
Madison, Wisconsin 53706
Telephone: 608/262-1416

February, 1976

Dear Neighbor,

This research study's objective is to evaluate the attitudes of women toward family planning. Your opinions and beliefs about birth control methods are important and are needed to prepare a thesis and help me to finish my graduate work.

Please complete the following brief questionnaire. There are no right or wrong answers. Your opinion is the only thing that matters. After completing the questionnaire, please return it in the enclosed addressed, stamped envelope.

Your answers are confidential, of course, and the questionnaire need not be signed. Thanks for taking a few minutes from your busy schedule for this study. An early reply will be appreciated. With best wishes to you and your family.

Director, Family Planning Survey
School of Pharmacy
University of Wisconsin, Madison

1. What number of children do you regard as an ideal family size? ____

2. Do you have any living children? ____No; ____Yes; If yes, how many? ____

3. Do you want to have any (more) children? ____No; ____Yes; How many (more) do you prefer to have? ____

PLEASE CHECK THE RESPONSE WHICH BEST DESCRIBES YOUR OPINION ON THE FOLLOWING:

4. Small families are preferred if you are to provide fully for the children that you have.

___strongly agree; ___agree; ___not sure; ___disagree; ___strongly disagree

5. A woman's health will suffer if she has too many children.

___strongly agree; ___agree; ___not sure; ___disagree; ___strongly disagree

6. Birth control helps a couple like my husband and me to lead a happy married life.

___strongly agree; ___agree; ___not sure; ___disagree; ___strongly disagree

7. Nowadays some married couples practice some form of birth control to keep from having more children that they want. Generally speaking, do you approve or disapprove?

___strongly approve; ___approve ___not sure; ___disapprove; ___strongly disapprove

8. BELOW ARE LISTED VARIOUS METHODS WHICH HAVE BEEN USED TO PREVENT PREGNANCY. PLEASE CHECK THE DEGREE OF PROTECTION YOU BELIEVE EACH PROVIDES.

	No protection	Some protection	Good protection	Don't know
a. Douche	____	____	____	____
b. Cream, Jelly, or Foam	____	____	____	____
c. I.U.D.	____	____	____	____
d. Diaphragm	____	____	____	____
e. The 'Pill'	____	____	____	____
f. Rhythm	____	____	____	____
g. Withdrawal	____	____	____	____
h. Condom (Rubber)	____	____	____	____
i. Sterilization	____	____	____	____

9. Have you previously thought about the number of children you want? ___No; ___Yes

If yes, did you discuss your desired number of children with your husband?

___No; ___Yes

10. PLEASE CHECK WHEN THE CONTRACEPTIVE METHODS LISTED BELOW SHOULD BE USED.

	Before sex	During sex	After sex	Every day	Inside woman all the time	No sex certain days	Not sure
a. Douche	___	___	___	___	___	___	___
b. Cream, Jelly, or Foam	___	___	___	___	___	___	___
c. I.U.D.	___	___	___	___	___	___	___
d. Diaphragm	___	___	___	___	___	___	___
e. The 'Pill'	___	___	___	___	___	___	___
f. Rhythm	___	___	___	___	___	___	___
g. Withdrawal	___	___	___	___	___	___	___
h. Condom (Rubber)	___	___	___	___	___	___	___

11. HAVE YOU EVER SOUGHT ADVICE ABOUT BIRTH CONTROL FROM ANY OF THE FOLLOWING SOURCES? AND WHERE DO YOU THINK PEOPLE SHOULD GET ADVICE ABOUT BIRTH CONTROL?

I have sought advice from		People should get advice from
____	Books	____
____	Family Planning Clinic	____
____	Father	____
____	Friends	____
____	Mother	____
____	Pharmacist	____
____	Physician	____
____	Teacher/School	____
____	Other (Specify)_____	____

12. PLEASE CHECK ALL THE TYPES OF BIRTH CONTROL METHODS YOU HAVE EVER USED AND THE METHOD YOU ARE PRESENTLY USING.

Ever used		Presently using
____	Condom (Rubber)	____
____	Withdrawal	____
____	Rhythm	____
____	The 'Pill'	____
____	I.U.D.	____
____	Cream, Jelly, or Foam	____
____	Diaphragm	____
____	Douche	____
____	None at all	____
____	Other (Specify)_____	____

13. Is (are) there any method(s) of birth control that you would never want to use?

___No; ___Yes

If yes, which method(s)_____

_____

The following information is needed to classify the data.

14. What is your present age? ____

15. What is your nationality? _____

16. How long have you been married? _____

17. Please check your formal school classification.

___Some high school; ___High school; ___Some college; ___College

___Presently in college. If presently in college, are you

___Undergraduate; ___Graduate; ___Other (Specify)_____

18. Is your husband an ___undergraduate; ___graduate; ___other (Specify)_____

19. Your annual combined family income is in which of the following income brackets?

___Under $3,000; ___$3,000-4,999; ___$5,000-6,999; ___Over $6,999

20. Which, if any, religious preference do you have?

___Protestant; ___Catholic; ___Jewish; ___None; ___Other (Specify)_____

21. How long have you lived in Madison? _____

Thank you for helping in this study!

Appendix B

Knowledge of Contraceptive Methods

Contraceptive Knowledge is categorized as

Accurate (or Adequate)
Fair
Poor (or Inadequate) including 'don't know' responses

Development of knowledge score for the above classification:

(1) Effectiveness of contraceptive methods (see Question No. 8 in Appendix C)
One point was awarded each correct answer as shown in Appendix C. No point (zero) was awarded each incorrect (or 'don't know') response.

Maximum total number of points possible is NINE.

(2) When to use of different contraceptive methods.
One point was awarded each correct answer only.
Zero or no point was awarded each incorrect or 'don't know' response (see Question No. 10 in Appendix C)

Maximum total number of points possible is EIGHT.

Summated total points on knowledge score possible = 8 + 9 = 17.

Classification of responses based on the knowledge score:

Points	Classification
11 to 17	Accurate Knowledge
9 and 10	Fair Knowledge
Less than 9	Poor or Inaccurate Knowledge

8. BELOW ARE LISTED VARIOUS METHODS WHICH HAVE BEEN USED TO PREVENT PREGNANCY. PLEASE CHECK THE DEGREE OF PROTECTION YOU BELIEVE EACH PROVIDES.

	No protection	Some protection	Good protection	Don't know
a. Douche	✓			
b. Cream, Jelly, or Foam		✓		
c. I.U.D.			✓	
d. Diaphragm		✓		
e. The 'Pill'			✓	
f. Rhythm		✓		
g. Withdrawal		✓		
h. Condom (Rubber)			✓	
i. Sterilization			✓	

9. Have you previously thought about the number of children you want? ___No; ___Yes

If yes, did you discuss your desired number of children with your husband?

___No; ___Yes

10. PLEASE CHECK WHEN THE CONTRACEPTIVE METHODS LISTED BELOW SHOULD BE USED.

	Before sex	During sex	After sex	Every day	Inside woman all the time	No sex certain days	Not sure
a. Douche			✓				
b. Cream, Jelly, or Foam	✓						
c. I.U.D.					✓		
d. Diaphragm	✓						
e. The 'Pill'				✓			
f. Rhythm						✓	
g. Withdrawal		✓					
h. Condom (Rubber)	✓						

✓ indicates correct response

APPENDIX D

Currently used methods of contraception were categorized into:

Effective and

Less Effective Methods.

Effective methods included the Pill, diaphragm used with cream, or jelly, IUD, the condom and sterilization.

Less effective methods included withdrawal, rhythm, cream, jelly or foam, diaphragm (used alone) and the douche.

APPROVED: Robt. W. Hamel

Prof. Pharmacy Administration

DATE: 25 May 1976