

Relationships Between Specialization and Attitudes Toward Population Related Issues Among Professional Students in Korea*

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I. Introduction

Population programs in Korea have emerged in the form of a national family planning program since 1962. The national family planning program has consisted of the provision of contraceptive services to eligible couples through public health networks along with motivational and informational services delivered by individual field workers on one hand, and the nation-wide informational service through various mass media channels on the other. The target population of the program was exclusively the one segment of the population that had already entered the reproductive period, those in the bracket between 20-44 who were currently married.

In spite of relatively successful results brought by these decade-long collective efforts in the nation-wide program, the fertility habits of the nation still need to be changed in order to bring down the population growth rate to a reasonable level so that the country can continue to progress at an economic growth rate which will ensure the quality of life.

The weaknesses of the program, like those in many countries, have been: 1) a lack of future perspective in terms of defining the target population to include only those who had already entered the reproductive age, while ignoring the bulk of future child-bearers the school and out-of-school youth (The nature of the existing program has been relatively static in terms of resources and methods applied to the population which was being continuously added to from the untouched population of youth.); 2) the use of the public health network as the main channel of the family Planning service delivery system has contributed to the existence of a limited leadership within the medical profession which generally lacks sociological perspectives with regard to fertility and population control programs.

Recently, however, leadership in the population field, has come to recognize the weaknesses of the program and has tried to seek other kinds of efforts that not only would overcome these weaknesses but would also be a non-exhaustive one. A population education program delivered through the formal educational channel represents one of the emergent approaches to this problem. (see Table 1)

Under the leadership of the Ministry of Education, the Central Education Research Institute (CERI) conducted a nation-wide textbook survey in relation to the appropriateness of the population content for the elementary and the secondary schools during the years of 1970 and 1971¹⁾ Institute also conducted a second project on "Curriculum Improvements for Population Education in the Elementary and the Secondary Schools of the Republic of Korea," which was completed in 1972.²⁾ As the result of these two projects, the population education curriculum was integrated into the existing program of the elementary and the secondary schools, and textbook revisions for this program have emerged.

Table 1. Degree of Population Education Curriculum Development and Teacher Preparation³⁾

Programs	Curriculum*		Teacher Preparation*	
	Objectives	Materials	Inservice	Pre-service
Formal				
Elementary	3	1	1	0
Secondary	2	1	1	0
Higher Education (a few representative departments only)				
General Educ.	1	1	0	0
Sociology	3	2	1	3
Economics	1	1	0	0
Geography	1	1	0	0
Political Sc.	1	1	0	0
Medical	4	3	2	3
Nursing	4	3	2	2
Public Health	4	3	3	3
Pharmacy	0	0	1	0
Social Work	1	1	1	0
Home Economics	1	1	1	0
Education	0	0	0	0
Non-formal				
Youth	0	0	0	0
Military	2	1	1	0
Labor	1	1	0	0
Rural Women	3	4	3	2
Rural Men	1	2	0	0
Urban Adults	1	2	1	0

* Rated on a five-point scale (0=Nothing, 1=Experimental, individual locations, Seminars, 2= Pilot, large segments, 3=Well developed, 4=Fully established.)

In the higher education sector, especially, professional schools, such as medical and nursing schools, a relatively large proportion of class hours in population matter is devoted to and focused on the medical and health aspects of the family planning and population program. School of education curriculums, however, have not included any portion of a population or family planning component at the present time. The CERI strongly recommended curriculum revision for teacher training programs in this regard. It is envisioned that in-service and pre-service education in population education for teachers and potential teachers will be under way very soon.

The Educational System in Korea

The current educational system adopted by the Ministry of Education in Korea is organized in the pattern of K-6-3-3-4 for formal education. Under this system, there

are two levels of teacher training programs; namely, the college of education within university setting which is a four-year program leading to a bachelor's degree, and the other, the junior college of education which is two-year program leading to an associate degree for elementary teachers. For nursing education, there are also two levels, one with the four years' baccalaureate program within the institution of higher education and the other, three-year programs either at the junior college level or college level which both lead to a diploma in nursing. The diploma or three-year programs are generally attached to the general hospital or independently associated with university foundations. Medical education in Korea extends to six years of schooling which is divided into two segments; the first two years are devoted to the medical preparatory course which includes general education component as well. The latter four years of medical education is composed of exclusively professional components in basic medical and clinical sciences. The duration of medical education is the longest of all educational preparation in Korea.

Compulsory education in Korea at the present time includes six years of elementary schooling. The 1971 STATISTIC YEAR BOOK OF EDUCATION⁴⁾ reported the enrollment of 97.6 percent of the total school-age population in school that year while there was only 58 percent in school in 1953. The large proportion of elementary graduates moves up the educational ladder although the number gradually decreases as it goes up higher. One of the reasons for the suggestion that population education be part of the formal education system in Korea was that nearly the total population of school age children could be covered. The introduction of population education in teacher training programs may be expected to have some impact.

In non-formal education, both the government and voluntary agencies in Korea have shared for over ten years the effort in information and education programs on population and family planning. Information has been disseminated through mass media and several thousands of field workers. In other words the non-formal education program has been a part of a total family planning program in finding new acceptors of family planning. Since drop-outs from the elementary school population do not represent a serious problem in Korea, the effort of the Ministry of Education is to direct the population education program toward its school systems. Drop-outs from various levels of schooling, however, are supposed to be picked up by the family planning program implemented by the health ministry.

Regarding the study of knowledge and the attitudes toward population education among elementary and secondary teachers and students, the CERI has collected information as a part of the two projects previously mentioned. Kim and Cho also conducted a similar study on the secondary teachers and students⁵⁾ However, no study, to the best of this writer's knowledge, has been conducted on attitudes of professional students in medicine, nursing, or education, although the population curriculum has long been implemented in some of these professional schools in Korea. The CERI study revealed that although teachers and students expressed their concerns for the seriousness of population consequences, their knowledge regarding population matters was not ac-

curate. Of course, the source of the information and knowledge they had acquired was not the school curriculum, but was the mass media and word of mouth.

In the United States, a number of studies, in recent years, have attempted to determine the attitudes of college students toward fertility values, contraception, and related issues. For instance, Westoff reported that the efforts of higher education on fertility values of female students were almost negligible⁶⁾. Phillips found through his study that college students showed a relatively high degree of uncertainty and indecision with regard to fertility values and related areas⁷⁾.

Darney reported the attitudes of college students as follows: While most students were aware that overpopulation is a problem both abroad and in the United States, 50 percent of the medical students studied planned on having at least four children and 50 percent of the state college student couples planned a family of at least three children⁸⁾. Eisner et al. studied attitudes and preferences concerning family size and contraceptive techniques of faculty, graduate students, and upper- and lower-classmen students at University. Their findings were: 1) Although general agreement on the desirability of limiting family size, a substantial majority revealed it wanted three children or more. Only 30 percent favored two children or more, 5 percent expressed a desire for one or more. 2) The desires were in no major way affected by age, sex, marital status, or professional specialty.⁹⁾

A brief review of related studies of the attitudes and fertility values of college population suggested that the attitude was not consistent with the behavioral intention. This seemed to support Fishbein's attitude theory¹⁰⁾. In order to gain a more meaningful explanation for attitudes of college students in relation to population matter, the effects of need would need to be determined.

Statement of the Problem

The attitudes of professional people are believed to influence the services rendered to clients. This is especially likely in areas of service where the intimate nature of personal feelings and behaviors are involved, such as in the areas of family planning, sex education, and abortion. The attitudes and the knowledge of professional students in medicine, nursing, or education will undoubtedly influence their service behaviors when they become practitioners. It is interesting to note, however, that very little attention has been paid to the impact of attitudes and the behavior of professionals on the services they render although there have been numerous studies on clients' attitudes and behaviors in relation to acceptance of services offered by these professionals.

In the last few years, a trend both in Korea and many other population-conscious countries has become apparent in increased attention to population education. Some attention has been focused on the attitudes of teachers and students in relation to family planning and population dynamics.

This study had two main purposes, one was to examine the possible relationships of

different types of professional training to attitudes and beliefs toward family planning, abortion, population education and equality of the sexes. The second was to examine the possible relationships of desired family size to the size of family in which they had been raised, the concepts of small, large, and ideal family size, and the professional background.

Questions posed for this study were as follows:

Problem 1. What were the perceptions and attitudes of professional students with different specializations toward family planning, abortion, population education, and equality of the sexes related to family planning? Were there any differences between the student's specialization and his perception and attitude toward the specified objects?

Problem 2. What were the fertility values held by professional students in different specializations? Were there any differences of the desired family size in terms of number of children between different professional groups? between different sizes of family in which they had been raised? between different concepts of small, large, and ideal family size?

In order to answer the above questions, the following hypotheses were formulated and tested:

Hypothesis 1. Students in health professions in general are more likely to show positive attitudes toward family planning, abortion, population education, and equality of the sexes than students in the teaching profession.

This hypothesis was developed on a logical basis. Since the medical and nursing students have been exposed to family planning and population related curriculum content, it is assumed that they are better informed of the subject matter which would be expected to have a definite impact on students' perceptions and attitudes toward these objects. As was mentioned above, the school of education curriculum has no content area that covers family planning and population related areas. These students, both in teaching and in health, however, have been exposed to national family planning information programs through various channels of mass media. Therefore, if this hypothesis is confirmed in this study, it would suggest a further study to determine if these differences were related to the population related curriculum.

Hypothesis 2. Students in the teaching profession value larger families more than do students in the health professions.

This hypothesis is derived from the following assumption. If students have negative attitudes toward family planning and other related population matters, they would not have been influenced to desire a small size family.

Definition of Variables

Independent variable. Since this study is to compare the attitudes and beliefs of students with different professional specialization toward family planning, abortion, population education, and equality of the sexes, and the differences in desired fertility values, the independent variable is "professional specialization," namely, education, nurs-

ing, and medicine which are categories of that variable.

Sex and the class level in schools of the student were used as control variables throughout analysis of the data. These were held constant to measure the effect of independent variable on designated dependent variables.

Dependent variables in this study were: (a) attitudes and beliefs toward abortion, population education, family planning, and equality of the sexes related to opportunities, and (b) fertility values in terms of the desired number of children in a family.

Definition of Terms

Terms used in this study were defined as following:

Attitude referred to a learned predisposition to respond to any object in a consistently favorable or unfavorable way.¹⁰⁾

Population education referred to an educational process where by an individual learns the consequences of population phenomena including sex education.

Family planning referred to the planning of a family in terms of number of children and spacing of birth intervals through some form of contraceptive effort.

Population program was defined as a national program directed toward reduction of the population growth rate through various programs, for example, family planning and population education.

Induced abortion was referred as a medical intervention applied to a pregnant woman for the purpose of terminating pregnancy.

Population curriculum referred to a formal school content which includes population related matters and subjects.

Fertility value was defined as number of children desired in a family, and is expressed either as desired, ideal, small or large.

Size of family referred to the number of children in a family, expressed either small or large.

Equality of the sexes referred to whether the same opportunities and rights are given to male and female in terms of education, employment, and decision making.

Education student was defined as the student whose major was teaching in the teacher preparation program regardless of his specific area of concentration.

Medical student referred to the student in the medical program after two years medical preparatory course.

Nursing student referred to the student in the baccalaureate nursing program.

Implications of the Study

Authorities in population education in Korea advocate that "population education is primarily aimed at making an attempt to build up appropriate attitudes and behavior of students toward a family size suitable for the living environment. It would assist

them to make rational and responsible decisions in their adult life, by providing instruction in the serious problems which come from overpopulation."²⁾ To this end professional curriculums in nursing and medicine have long been including health and medical aspects of the population program in Korea. It is desirable to note whether the population related curriculum which has been implemented has any impact on students attitudes toward population matters or toward their own fertility values.

Since there has been no study comparable to this study in Korea, this study would then provide baseline data as well as a direction for further study with respect to the curriculum and its impacts on students attitudes and behaviors.

In spite of the fact that the study population was limited to students enrolled at the Seoul National University, the findings would seem to provide useful indicators of the attitudes of college students in the Korean culture.

II. Review of Related Literature and Research

Due to the recent origin of population education, the literature in this area is very limited. However, articles regarding the area in terms of its concepts and rationale written by authorities concerned were found to be sufficient for a review. These relevant articles have been reviewed followed by a review of other related research. A brief note on theories as to the relationship between attitude and behavior was included in the review since this relationship is directly related to the population education.

Rationale for Population Control through Education

A rationale for the inclusion of population education as a part of the curriculum of an educational system was developed from the notion that educational systems are concerned with the promotion of rational behavior. Such a model assumes that "the human being has a cerebral cortex, that he seeks understanding, that he consistently attempts to make sense of the world about him, that he possesses discriminating and reasoning powers which will assert themselves over time, and that he is capable of self-criticism and self-insight."¹⁾

The present emphasis in the literature of population education upon the improvement of family planning education, upon the development of population education, and upon developing a better communication system between the health service provider and its consumers, would seem to be an indication of the belief in the importance of rationality and comprehension in the forming and changing of men's opinions and attitudes. To this end, researchers in the Central Education Research Institute in Korea, reporting as a matter of official policy, advocated that the best way to ensure the full benefits of a family planning program which has as a hidden agenda, population control, is to deal with population issues systematically in a school based program reflecting the

many sided aspects of population problems. Aspects of population related issues which could be reflected on in school programs recommended by the researchers included such topics as the basic concept of family planning, advantages of ideal family structure, the nature of population change, and the relationship between population, nature, and the environment. It was further advocated that population education should guide the younger generation to rational thinking and rooted convictions about family planning. These researchers evidently supported the rationale for population education as a part of an educational system on the basis of belief in the rational nature of man.²⁾ Another aspect of the rationale for population education was the assumption that a change in belief would produce an immediate attitude change which would then encourage behavioral change.

On this point, Fishbein's theory described the interrelationship of behavior, attitude, and behavioral intention in the following quotations: ".....as a minimal initial step in trying to understand relationships between attitudes and behavior, we must first start measuring attitudes toward the appropriate stimuli vis-a-vis the behaviors we are attempting to predict.....a change in a behavioral intention does not lead necessarily to a change in attitude unless the change in behavioral intention is accompanied by a change in behavior per se.....unlike a change in belief that immediately produce an attitude change, changes in a behavioral intention may not produce a change in attitude unless the change in behavioral intention eventually leads to changes in behavior and thus changes in belief about the attitude object."¹⁰⁾ Fishbein further advocated that behavior toward a given object is a function of many variables, of which attitude toward the object is only one. In short, attitude is suggested to be either determined by or the consequences of beliefs and behavioral intention.

UNESCO¹²⁾ and the Population Reference Bureau¹³⁾ have revealed their beliefs in a traditional educational approach through the school system in dealing with the population education on the global basis. Both organizations emphasized the school population as one of the focuses of population education. The development of rational and responsible attitudes and behaviors in the students who would become the principal child-bearers within one or two decades was stressed.

Hauser was one of the earlier advocates of population education in the United States. He emphasized school-based population programs for various levels of the curriculum. The importance of this programs was viewed by him against the background of the global census which was increasing almost as much every three and one-quarter years as the total U.S. population.¹⁴⁾ Malthus, an Anglican minister who turned political economist in the late eighteenth century, described the population crisis in his essay on population; the possibility of human growth was infinite and the possibility of sustaining human growth was finite.¹⁵⁾ The only way to solve the dilemma presented by these two collision-course tendencies as suggested by Senior was for the human being to exercise that faculty which distinguished him from the animal world: reason.¹⁶⁾

Definitions of Population Education

Viederman defined population education within the educational context, as the

process by which the student investigates and explores the nature and meaning of population processes which are interrelated to change for himself and his surroundings¹⁷⁾. Burleson on the other hand, defined it within the socio-cultural context, as an exploration of knowledge and attitudes about population, basic social institution, sexuality and underlying basic values.¹⁸⁾ Simmons treated it with reference to four content areas which the population education program should cover, namely, sex education, family life education, population awareness, and basic value orientation.¹⁹⁾ Wayland suggested a two dimensional educational approach to population problems, namely, as a national issue and as an individual family problem, which should be integrated into the school curriculum in order to produce a change in attitudes and values.²⁰⁾

The review of related articles seemed to indicate that the concept of population education was relatively new in terms of its scope, objectives, strategies and activities although the relation of the population problems and the rational nature of man had been identified many years ago. An all inclusive definition derived from definitions of many experts of this field would state that population education was concerned with the use of school and non-school programs to produce awareness of the social and environmental effects of the explosive increase in human population and responsible behavior in the areas of family life, human reproduction, and development of public policy.

Attitudes Toward Population Education

An Indian study (1970) of the opinions of school children and their parents and teachers in terms of birth planning and related issues revealed strong support for a population education program with certain reservations.²¹⁾ The findings of this study gave some insight as to how school teachers in one community viewed teaching of population related issues to their students. According to this study which included a sample of 832 teachers of which 160 were interviewed and 672 surveyed by a questionnaire, 94 percent agreed that there should be education on population and family planning. These teachers, however, agreed that under the certain condition reproductive physiology and contraceptive methods should be taught only at the college level while topics related to overpopulation and the need for small families might be taught at a lower level of schooling. More specifically, what this study indicated was that the content of population education in elementary and secondary schools should be as follows: (1) population dynamics and the dangers and problems that rapid rates of population growth produce for the nation, (2) the advantages to the individual, couple and family of small families, (3) the advantages of later marriage and childbearing and (4) other closely related topics not including sex or contraception.²¹⁾ This study team insisted on the possibility of a so-called "sexless" population education that did not involve sex and contraception directly as suggested by Wayland of Columbia and Burleson of Harvard.²¹⁾ Analysis of the questionnaire data, however, showed a very

low observed reliability correlation coefficient which ranged from .13 to .60 obtained from the test-retest method calculated from a sample of the study population. The validity of the instrument was not measured. It is, therefore, doubtful that one could generalize to other situations. Since the findings of the study as the instrument used for data collection was not validated nor was the reported reliability sufficiently high.

Kim and Cho (1970) reported the attitudes of middle and high school teachers in Korea with regard to population education. Eighty six percent of respondents favored formal population instruction with attention to the concept of family planning in the school curriculum. The religious factor was reported to be negligible in influencing the teacher's attitudes toward the scope and content of population education in school curriculum.⁵⁾ Kim, Tae Ryong reported in another study that soldiers who had learning experience in family planning and related areas expressed more desire to learn about family planning and sex education than soldiers who did not have any learning experience in these areas.²²⁾ (A proposition might be derived from this report that one who has some knowledge about a particular area is more likely to have a desire to learn more about that particular area. Inclusion of population education in formal and non-formal education sectors might be justified from this angle alone.)

A large scale study of a national sample on knowledge and attitudes of 4,234 primary and secondary school teachers and 3,399,924 students concerning population matters which was carried out in Korea in 1970 and 1971 as a part of "Project in Curriculum Improvements for Population Education.....,"¹⁾ reported valuable information for developing formal population education programs. According to the findings of this study, teachers responded to six population education topics and the school levels at which they should be included in the curriculum. Teacher's attitude toward the fitness of including major population topics in the curriculum was indicated as follows:

1) The concept of population problems-33.1 percent of respondents favored the middle school (seventh to ninth grade) and 30.6 percent of respondents indicated it should be included in the high school.

2) Facts of population phenomena-on the whole the highest percentages of responses were for inclusion in the middle school (39.9 percent) and in the primary school (27.0 percent).

3) Problems of overpopulation-this topic was found to be favored for the middle school (41.1 percent), the high school (26.0 percent) and the primary school (25.7 percent).

4) Solutions of over-population problems, and significance of family planning were favored for the high school and middle schools.

5) "Family planning methods" were indicated as appropriate at the high school level by the largest number followed by the middle school and higher education.¹⁾

Factors impeding population education were viewed by teachers in the same study in the following order: 1) instructional material shortage, 2) awkwardness of teaching, 3) insufficiency of students' attitudes, 4) lack of teacher's knowledge and understanding, 5) concern for social moral disorder, and ethical considerations, 6) common

conventionalities prevailing in Korean society against open talk about sex with the young generation. In summarizing the teacher's attitudes toward population education in relation to the population program in Korea, the study reported that teachers believe that the most reasonable means of population control is to carry out family planning programs for adults, to disseminate knowledge of the need for family planning programs through school education.....¹⁾ In comparison with the Indian study mentioned previously, the Korean study showed more liberal attitudes on the part of teachers in terms of content areas and the scope of population education to be included in elementary and secondary schools.

Werley et al. reported attitudes of professionals in medicine, nursing, and social work toward selected aspects of birth control and relevant issues.²³⁾ In their study, the study population was drawn from a nation-wide sample for which the procedure was combined with random sampling and stratification for type of program, locality, and religious denomination. This study was conducted in the United States. The result of the study showed that the five areas for which respondents expressed the greatest need for more instruction. For nursing and medical students and faculties, these areas were: psychological aspects of birth control, problems related to unplanned pregnancy, human sexuality, and the opportunity to observe and counsel clients in family planning. For social work respondents the five areas for which more instruction was needed were different from medical and nursing groups. They excluded problems of unplanned pregnancies and opportunity for students to observe and counsel family planning clients, but included instruction in contraceptive methods and sterilization. It was apparent, then, that each professional was more satisfied with instruction along his own line of expertise while dissatisfied or expressed the need for more instruction in the area on which his professional content did not focus.

From the angle of public viewpoints with regard to family planning and population education which included sex education, the survey data obtained from a national sample of Americans in 1971 showed that 60 percent of all Americans supported birth control education in public schools²⁴⁾. This opinion poll also showed that nearly nine in ten of all Americans believed the dissemination of birth control information should be made available by the government to all men and women who wanted it. In other words, most Americans favored family planning education in non-formal as well as in formal education sectors.

Findings of an attitude study conducted by Prapapen Suwan of primary school teachers and administrators in Thailand showed that both groups displayed positive attitudes toward "intention to act on some population education activities" in schools.²⁵⁾ This study also found that there was a negative correlation between the levels of training and knowledge regarding government population policies among primary school teachers. Those teachers with lower teaching certificates were best informed of all with regard to government population policies followed by the diploma teachers, and then by teachers with baccalaureate degree who were least informed.²⁵⁾ This study suggested critical review of the pre-service education program in terms of population content and

that the possible remedy for the situation might be an in-service program.

Attitudes Toward Abortion

The Indian study previously mentioned revealed that the majority of teacher respondents appeared to favor abortion if there were a reason for it²¹⁾. It should be noted that abortions in India were illegal although there was discussion of liberalizing the circumstances under which they might legally be performed.

In a Korean study, 2.8 percent of teacher respondents indicated that "legalized abortion" would be the most rational method of population control while 14.7 percent favored "legalized birth control" as the best method²⁶⁾. The study team suggested that there was an apparent unwillingness to express approval of either contraception or abortion as a practical solution to individual problems as this went along with the tendency to regard population control as only a national or social problem. In contrast to the above interpretation, Hong reported in his abortion study in Korea²⁷⁾ that two-thirds of all abortions were performed in order to limit family size. A great majority of these women were over the age of thirty and had five or more pregnancies. According to the further analysis of his data, he concluded that three-fourths of the women who have had induced abortions 'disapprove' of abortion, and a higher proportion of those knew correctly that it was illegal²⁷⁾. Hong indicated that his data measured attitude better than it predicted future behavior. Abortion was widely disapproved but tolerated and widely resorted to when necessity demanded.

An opinion poll for a national probability sample of Americans in 1972²⁴⁾, with regard to birth control and population, found strikingly liberalized attitudes on abortion. According to this national probability sample survey, 50 percent believed that abortion should be a matter decided solely by individual couples and their doctors, and abortions should be permitted under many circumstances. Those most favorably disposed tended to be younger, better educated and earning high incomes.

Another Gallup Organization Survey²⁸⁾ which was conducted in January 1972 and for which figures were released by the Planned Parenthood-World Population Organization showed that 57 percent of all Americans agreed with the statement, "the decision to have an abortion should be made solely by a woman and her physician." These liberalized attitudes toward abortion may be due to the influences from the legalized abortion practice laws which have been passed in many states since 1970. Werley and others reported the attitudes of professionals in medicine, nursing, and social work. According to their findings, abortion was supported by 54 to 80 percent of respondents when a "couple jointly" desired the abortion while abortion as a woman's option received less support, 42 to 76 percent²³⁾. The least support for this proposition was found among nursing students and faculty, the vast majority of whom were women.

Fertility Values

Pohlman and Rao's study of an Indian sample on desired family size revealed that the desired family size was much smaller than actual sizes of family in which they had been raised, without apparent urban-rural differentials.²¹⁾ The inverse relationship was observed in this study, between the desired family size and school grades completed. The desired family size decreased as grade level of schooling increased. A slight urban-rural differential was observed in this item.

The CERI study in Korea¹⁾ revealed that teachers' desired family size in terms of the number of children was 3.56 while students' desired average number of children after marriage was 3.44 for the high school and 3.43 for the middle school. These students on the average had 4.94 brothers and sisters. The significant trend observed in this study was that the desired number of children was about 1.5 less than the actual number of siblings the students had although a teacher-student differential was not observed to be significant in terms of the desired number of children.

Westoff and Potvin reported that the role of higher education in the reduction of the fertility value of women was almost negligible on the basis of a study conducted on a large sample of American college women, in 1967,⁶⁾ Darney's study in attitudes of married college students with regard to population and family planning revealed that 50 percent of medical student couples studied planned on having at least four children which was the largest desired number of children of all, although the most students were aware that overpopulation was a problem⁸⁾.

A study of attitudes and preferences concerning family size and contraceptive techniques, at the Cornell University campus conducted by Eisner et al. which included a total sample population of 1,059 students and faculty, revealed that a substantial majority was found to desire three children or more although general agreement was found on the desirability of limiting family size⁹⁾. The desires were in no way affected by age, sex, marital status, parenthood or professional specialty.

Summary

From review of related literature and research, trends in the following areas were observed.

1. Population education has not been clearly defined as to objective, content, and method from country to country and from expert to expert. Nevertheless, the trend toward incursion of population education in the formal educational system becomes apparent. The fact that many have been concerned in this area would seem to demonstrate clearly a positive attitude toward population education for both the formal as well as non-formal education sectors.

2. An apparent trend has been observed in liberalized attitudes toward induced abortions as a supplementary means to family planning in limiting family size as a

means to population control. This trend was observed both in countries where there was a liberalized abortion practice law and where abortion was illegal.

3. The relationship between attitudes toward population related problems and their own family plans seemed to have no clear-cut trend. The area seemed to require more theoretical exploration in terms of the attitude-behavior, attitude-beliefs, and beliefs-behavior dimensions. The related research revealed a trend of positive attitudes toward smaller size families in general although professional people in some countries seemed to desire large families. The trend toward decreasing family size seemed to be more apparent in economically developing countries than in economically advanced countries, such as the United States. (This related to changes in family size not actual size.)

III. Methodology

Population of the Study

The study population consisted of three professional groups of students, namely, those in education, nursing, and medicine at Seoul National University in Seoul, Korea. That university was the largest one in Korea and was composed of thirteen colleges with undergraduate programs, and six professional graduate schools. The total number of students enrolled for undergraduate programs was 13,619 when this study was conducted. The target population of this study was all of the students enrolled in the Teacher's College, the College of Medicine, and the Department of Nursing during the spring semester of 1974 academic year. The total number of students enrolled in these three schools was 2,408 and this represented the 17.7 percent of the total student body of the university.²⁹⁾

Data Gathering Instrument

A forty-six item questionnaire was developed and used as a data gathering instrument for this study. The questionnaire included nineteen attitude scale items, ten items of general information, and seventeen items dealing with fertility values and related issues. Among nineteen attitude scale items, ten items, five items, and four items dealt with the variables of abortion, population education, and equality of sexes respectively. The details for the development of the instrument have been described below.

Procedure for the Data Collection

One of the staff members of the School of Public Health, Seoul National University was assigned as a field research assistant and stationed in Seoul for the purpose of the collection of the data. The writer stayed in Chapel Hill during the entire period of the data collection for financial reasons. The Dean of the School of Public Health of

Seoul served as the advisor to the field research. The field research assistant was informed of the details involved in carrying out the procedures for the data collection through written and telephone communications with the writer and with technical assistance from the field advisor. The number of students in the target population of the study was obtained from the University Administration by the research assistant before the printing of questionnaires. In order to obtain administrative cooperation from the respective schools of the study, letters were sent out to the deans of the respective schools by this writer. In addition the Dean of the School of Public Health, the field advisor, paid official visits to the deans involved, for the administrative assistance needed for the administration of questionnaires to the study population. The chairmen and student representatives of departments concerned in the Teacher's College were contacted for the assistance needed for the actual administration of the questionnaires. Six nursing instructors and a group of education students were used as questionnaire administrators for this survey. These administrators were informed of the details involved in the procedure prior to the actual administrations. The actual administration took place during the period from April 20th to May 8th in 1974. All of the answer sheets collected from 1,692 students in the three professional schools were sent to this writer in Chapel Hill, by air mail. All the data were received by May 17, 1974.

Descriptions of Respondents

Of 1692 respondents, the education students constituted 50 percent while 17.3 percent and 32.7 percent were from the nursing and medical groups respectively. The total proportion of male students was 72.6 percent against 27.4 percent of female students. The sex composition of the respective groups was 84.6 percent, 0.0 percent, and 92.6 percent of male students against 15.4 percent, 100.0 percent, and 7.4 percent of female students for education, nursing, and medicine respectively. The mean age for all respondents was 21.6 years, whereas the mode was found to be 20 years or less. The mean ages for different professional groups were 21.3 years, 20.7 years, and 22.5 years for education, nursing, and medical students respectively. With regard to the marital status of the respondents, only 2.0 percent of male students and 1.3 percent of female students were married.

Response Rates

The total number of students from the three respective schools who participated to this study was 1,692 or 70 percent of the total target student population of the study. The proportion of respondents from the different professional groups was 60 percent, 90 percent, and 80 percent from education, nursing, and medicine respectively. Response rates by class level ranged from 59 percent to 88 percent. The highest response rate was found in the fourth year class of the medical school while the lowest was in

the junior class of the teacher's college. On the average, the nursing group showed the highest response rate, or 90 percent followed by 80 percent of the medical group. The low response rates for the education group was due to the difficulties involved in location of individual students as these students, unlike the other groups, were taking courses which were widely spread out over the two different campuses. The student practice teaching, which was just being held when this study began was another factor attributed to the low response rates of this group. The medical and nursing schools were located in the same campus within the medical complex, and classes were usually held within the respective schools which undoubtedly contributed to the relatively high response rates.

Treatment and Analysis of the Data

The answer sheet for the questionnaire was designed in such a way that coding work was not necessary. The raw data was punched into IBM cards by individual students and then the data was processed at the Computation Center of the University of North Carolina at Chapel Hill. The Statistical Package for the Social Sciences (SPSS)³⁰⁾ was used for the data computations by the computer, an IBM OS/360 Model.

For the analysis of the data, the following statistics were used:

- 1) Absolute and relative frequencies were computed for dependent variables of fertility values, beliefs in family planning, and population related issues which were those items other than attitude scales. Chi square tests were performed at the alpha level of .05 to compare the differences in categories of independent variable to each dependent variable.

- 2) For each attitude variable, the mean scale values, standard deviation and variance of each dependent variable for each subgroup of each independent variable were computed for a One-Way Analysis of Variance. Duncan's Multiple Range Tests at the .05 level were performed to compare the individual means when Fisher's Ratio revealed significance at the alpha level of .05.

Development of Instrument

A number of methods is available for measuring of attitudes.³¹⁾ For this study a self-report form for the measurement of attitudes has been developed which employed the "absolute-response" technique rather than one of the "relative-response" techniques. A questionnaire including nineteen attitude scale items on three variables (Abortion, Population Education, and Equality of the Sexes), was initially constructed by the investigator. In construction of the attitude scales, Likert's five-point scale technique embodying various degrees of positive and negative feelings was used.³²⁾ The number of items in each attitude variable was ten, five, and four for abortion, population

education, and equality of the sexes respectively.

By following the Likert's five-point scale, each item consisted of five alternatives and these alternatives were weighted from five points to one point in the following manner:

Strongly agree.....	five points
Agree.....	four points
Undecided.....	three points
Disagree.....	two points
Strongly disagree.....	one point

In other words, the total scale values obtained from all items would then represent either a negative or a positive attitude toward the specified attitude objects as a whole, while the subtotal scale values obtained from those items in each variable would measure either the positive or the negative feelings toward that particular attitude object.

The questionnaire was initially developed in English and then it was translated into Korean. Considerable care was taken in translating the questionnaire in order to retain the original meaning of the statements and yet to present the matter in an acceptable way in Korean.

A preliminary survey was conducted during the period from March 20th to April 1st, 1974 using thirty-two graduate students at the School of Public Health, Seoul National University in Seoul, Korea. The purpose of the preliminary survey was to develop a usable instrument.

Selection of Items

On the basis of the consensual validity obtained from a panel of experts, and item validity computed statistically, the attitude items were selected. The panel of experts consisted of five members who were currently engaged in population related fields in Medicine, Education, Nursing, and Sociology. Consensual validity was obtained for each statement of nineteen items and these items were categorized into three variables: 1) Abortion, 2) Population Education, and 3) Equality of Sexes. The members of the panel were all presently engaged in fields related to family planning, population education, public health nursing, maternal and child health, and population and family planning research at the School of Education and School of Public Health, University of North Carolina at Chapel Hill. In obtaining consensual validity, each member of the panel was visited individually by the investigator during the period of one week in April, 1974³³⁾. In addition, attempts were also made to obtain consensual validity of each statement and variable from five graduate students at the School of Education, and five Korean students majoring in various fields on the Chapel Hill Campus to see whether there were drastic deviations on the validity obtained from the panel of

experts. The Korean language form was used for the Korean group while the original English statements were used for the other two groups.

Validity of the Attitude Scales

Two items in the "Abortion" variable and three items related to the "Equality of Sexes" variable did not reach the 100 percent criterion of consensual validity by the three groups.

Along with the consensual validity data, an item analysis was also made to check the validity of each item by employing two different statistical methods. The criteria used in item analysis were internal ones, total scale scores and an internal consistency. In other words, two different statistical procedures, namely, quintiserial correlations, and the comparison of mean differences of the upper and lower 27 percent of the criterion groups in the sample population were employed for the item validation.

In computing the item discrimination index between two criterion groups of the upper and lower 27 percent of the thirty-two students in the sample population, the mean difference and the variance for each attitude scale were calculated, and then the t-test was employed to see whether the observed mean differences between these criterion groups were significant.

In the quintiserial correlation, the total score was taken as an appropriate index of the attitude which the attitude scale has been designed to measure as items were analyzed by correlating the responses to each item with the total scale score^{3d}. Thus selecting item for the attitude scale which correlated high with their total score tended to yield items which correlated high with each other. Therefore, it was only appropriate to use a total score as a criterion when the attitude measured by the total score was homogeneous.

In order to represent reasonably homogenous attitudes for criterion scores, items were classified into sub-categories of attitude on the basis of indicated consensual validity obtained from the panels of experts. The t-test of significance of obtained correlations was applied to the quintiserial correlation, to ascertain whether the obtained values were significantly different from zero. Since this was the preliminary work in selecting items for a questionnaire, it seemed appropriate to select items on the basis of tests of significance. Consensual validity was to be given more weight in items where statistical procedures failed to satisfy the criterion for item validity. Except one item, all items were statistically significant in terms of the calculated mean differences between the criterion groups, and the obtained quintiserial correlations were significantly different from zero as expected. Since statistical analyses of item validity in terms of selecting the appropriate items, were not necessarily the sole methods for determining the effectiveness of the item, both criteria, namely, the consensual-validity and the statistical item validity, were used as the bases in finally choosing attitude items in the questionnaire. Those items included in the questionnaire other than attitude scales, were selected on the basis of responses made on each

alternative and comments made by respondents in terms of the feasibility of obtaining accurate responses. Eight items were discarded, and many items were re-worded in order to be more specific and clearly understood. The number of items in the final questionnaire was forty-six which included ten items of general information, seventeen items dealing with family planning, population related issues, and fertility related items, and nineteen attitude scale items.

Reliability of the Instrument

Reliability has been defined as the degree of consistency with which an instrument measures whatever it does measure³⁴. The test-retest method was employed for the reliability of the instrument. The interval between the first and the second administrations of the questionnaire was twelve days. The reason for adopting the test-retest method was the assumption that measured attitudes are not changed within a short period of time. And yet it seemed reasonable to assume that the memory factor had not influenced successive responses made since a reasonable length of interval was given between two administrations of the questionnaire. A more important reason for choosing the test-retest method for the reliability was that this particular instrument was intended to measure several different variables. The split-half method did not seem to be applicable in this case.

In short, with the consideration given to the purpose of the instrument along with the assurance that maturation and memory factors generally criticized in the test-retest method were not applicable in this case, the test-retest method seemed to be the most suitable one for this case.

The coefficient of correlation between the scores made on the first and the second administrations of the attitude items, was computed for the statistical measure of reliability. The computed coefficient of correlation for the the total attitude scales was .88 while the coefficients of correlation obtained for each different section of attitude variables were .86, .66, and .78 for "Abortion," Population Education," and "Equality of Sexes" respectively.

IV. Findings and Discussion

As indicated in Chapter 1, two major questions were posed for the study. (1) What were the perceptions and attitudes of professional students with different specializations toward family planning, abortions, population education, and equality of the sexes? (2) Were there any differences between the student's specialization and his fertility value? In addition, throughout the data analysis, sex and class level were used as control variables to eliminate possible interactions in measuring the effect of specialization on the population related issues.

In statistical analysis of data for those items other than attitude scales, chi square values were computed for the overall responses of the item as well as for the individual categories of that item. Comparisons were made for overall differences and categorical differences of professional specialization with regard to responses. A one-way analysis of variance was performed for each different subgroup by using a nested design. It was not possible to perform a two-way analysis of variance due to the lack of an even number of subgroups. The nursing group had no male subgroup in this study. The findings are reported in this chapter.

Hypothesis One: Students in health professions are more likely to show positive attitudes toward family planning, abortion, and population education in general than students in the teaching profession.

Under this hypothesis, four sub-hypotheses were formulated in order to examine attitudes in specific areas. Following are the four sub-hypotheses:

1. Students in nursing and medicine are more likely to support the ideas of family planning and of using contraceptives than students in education.
2. Students in nursing and medical professions are more likely to have positive attitudes toward abortion in general than students in the teaching profession.
3. Students in nursing and medical professions are more likely to favor population education than the students in the teaching profession.
4. The nursing students are more likely to display positive attitudes toward equality of the sexes in terms of education, employment, and sex preference of child than the medical or the education students.

Family Planning and Plans for Contraceptive Use

Sub-hypothesis One: Students in nursing and medicine are more likely to support the ideas of family planning and of using contraceptives than students in education.

For examination of students' attitudes toward family planning, the frequency distribution of responses to an opinion statement, "Daughter-Son, without Distinction: Stop at two and bring them up well," 35 was analysed.

Specialization. As Table 2 shows, the overall chi square test indicated that there was a difference based on professional specialization with regard to the idea of family planning, at a highly significant level (chi square value of 74.51, p less than 0001). Chi square values calculated for individual categories indicated that, except for the "strongly agree" responses, the differences of professional specialization were significant at alpha levels ranged from .01 to .001. Looking at the five chi squares computed for individual categories, it was the difference of specialization in the "agree" responses that were the major source of the overall significance of the chi square. Taking only the "agree" responses, with two degrees of freedom, the difference was significant beyond the .001 level. In other words, as the actual proportions of this category indicated, the nursing students were decidedly more in favor of supporting the family planning idea for a two-child family. They were followed by the medical group, but when it came to favoring the rejection of the family planning idea, or being undecided about it, the position was reversed and the education group was more likely to reject the idea than

the nursing students while the medical students were unchanged, as they were in between the two. The "strongly agree" responses were only category which did not have significant differences of specialization in terms of the responses made.

These differences, the overall significant chi square and the individual significant chi squares for different categories, however, might have been influenced by the sex composition of the professional groups. Sex was introduced as an independent variable to detect a possible factor for the overall significance of chi square for professional specialization.

Sex. A highly significant sex difference was found at the .00001 level. It was found from the detailed analysis that the female students were decidedly more in favor of supporting the family planning idea for a two-child family according to the responses made.

Since the sex variable decidedly has a high significance in responses to the family planning idea, sex was controlled to see whether the relationship observed persisted. Significant differences of professional specialization in terms of responses disappeared although difference in the actual proportions between professional groups were persistently observed. From a careful observation of this data, it was found that every female group in different professions had higher proportions in positive categories although the statistical tests for significance had failed to show the difference as significant.

In short, it was found that sex differences were more significant than professional specialization in relation to either positive or negative attitudes which the students held toward family planning for a two-child family. The differences of professional groups, however, did seem to exist to some degree as health groups revealed a higher rate than that of the education group although the significance failed to reach the statistical criterion of an .05 alpha level.

Class level. When the class level was introduced as an independent variable, the overall significant chi square value of 21.66 indicated that there was a difference in responses. The class level was held constant and professional specialization was used as an independent variable to check the existence of obscured relationship. In every class

Table 2. Percentage and Frequency Distribution of Responses by Professional Specialization with Regard to Family Planning for a Two-child Family

Opinion	Education	Nursing	Medicine	Total	chi square	p less than
Strongly agree	69(8.2)	24(8.2)	35(6.3)	128(7.6)	1.70	N.S.
Agree	363(39.7)	203(69.5)	260(46.9)	826(48.8)	32.06	.001
Undecided	164(19.8)	30(10.3)	118(21.3)	312(18.4)	13.43	.01
Disagree	187(23.9)	29(9.9)	104(18.8)	320(18.9)	17.01	.001
Strongly disagree	63(8.5)	6(2.1)	37(6.7)	106(6.3)	10.31	.01
Total	846(50.0)	292(17.3)	554(32.7)	1692(100.0)	74.51	.00001

Note: For each measure, the figure in the parenthesis is the percentage.

level, the overall difference of professional specialization was observed at significant levels which ranged from .03 to .00001. In the "agree" responses for every class level, the nursing group consistently showed the highest proportions of all. The higher proportions of the nursing group in every class level in relation to the positive responses, might have been due to the sex difference of that group. The evidences from the above data, indicated that the nursing and female groups in general were decidedly more in favor of supporting the idea of family planning for a two-child family than the male education or the male medical students. This confirmed the earlier finding that sex differences were very important.

Perceptions of the National Family Planning Program

In order to pursue responses to family planning ideas further, the students' perception of the purpose of the national family planning program in Korea was asked. The majority of students in each subgroup perceived it as a measure to check population for the economic growth, and in this perception, no difference of professional specialization were observed. When sex and class level were introduced as independent variables, neither the sex difference nor the class difference was observed at a statistically significant level.

In short, it was found that the perceived purposes of the Korean family planning program were statistically different in the categories of "welfare of individual families" and "maternal and child health," according to the student's professional specialization at the significant level of .001 and .02 respectively contributing to the overall significant chi square of this item. The majority of each subgroup agreed that the perceived purpose of the national family planning program was as a "population check for the economic growth."

Beliefs as to the Purpose of Family Planning

An effort was made to check whether any discrepancy existed among students between the perceived government purpose and a personal belief with regard to family planning. As Table 3 shows, the majorities of subgroups shifted their responses from the "population check" in the item of perceived purpose, to the category of "welfare of individual families" as their personal beliefs in the item dealing with believed purposes of family planning. The difference of subgroups, however, was not statistically significant at the .05 level for this majority responses.

It was the professional difference in "maternal and child health" responses that was almost the entire source of the overall significant chi square value of 66.87. A psychological inference for this response would be that students in the health professions were decidedly more in favor of seeing "maternal and child health" as the purpose of family planning but when it came to favoring the "welfare of individual families"

as the purpose, or being undecided about it, it could not be said that they were less inclined than the students in the teaching profession.

Looking at the "population check for economic growth" responses only, a difference of specialization was found significant beyond the .001 level. In this category, the proportion of education students exceeded that of either nursing or medical students. It could be said that the education group were more likely to believe in family planning as the measure of population check for economic growth than the nursing or medical groups.

For further analyses, the sex difference of the overall significant chi square was found to be beyond the .005 level. Two major sources for this level of significance were the responses of "maternal and child health" and "population check for economic growth" categories. In other words, female students were more likely to favor "maternal and child health" as the family planning purpose and they were less inclined to favor "population check for economic growth" as the purpose of family planning than the male students, as the sex difference of significance was at the .05 level. When it came to the "welfare of individual families" as the purpose, or being undecided about it, however, the relationship of sex difference failed to show at the significant level.

For the detailed analysis, subgroups of specialization were introduced while the sex variable was held constant. In the male section, the professional difference of responses was significant at the .005 level. In other words, the male medical students were decidedly more in favor of the "maternal and child health" as the purpose of family planning than the male education students while the position was reversed in favoring the "population check for economic growth" as the purpose.

Table 3. Percentage and Frequency Distribution of Responses by Professional Specialization with Regard to Beliefs in the Purpose of the Family Planning Program in Korea

Believed purpose	Education	Nursing	Medicine	Total	Chi square	^P less than
Population check for economic growth	162(19.1)	30(10.3)	67(12.1)	259(15.3)	15.74	.001
Welfare of individual families	565(66.8)	189(64.7)	327(59.0)	1081(63.9)	3.12	N. S.
Maternal and child health	80(9.5)	63(21.1)	122(22.0)	265(15.7)	41.64	.001
Do not Know	39(4.6)	10(3.4)	38(6.9)	87(5.1)	5.37	N. S.
Total	846(50.0)	292(17.3)	554(32.7)	1692(100.0)	66.87	.00001

Note: For each measure, the figure in the parenthesis is the percentage.

For the category, "welfare of individual families" to which majorities of both groups responded, it failed to show the significant difference between the two groups. Taking the "do not know" responses, the male medical students were likely to have no opinion about the purpose of family planning than the male education students.

In the female section, there was no significant professional difference. When the class level was introduced, there was no consistent pattern of differences observed at a significant level of .05.

From the above data, it was concluded that professional specialization made differences only in male students in terms of their beliefs in family planning. The difference was also significant in certain categories of this item. A distinct pattern between the education and medical groups was the tendency of the education group favoring the "population check for economic growth" while the other group tended to favor the "maternal and child health" as the purpose of family planning in which they respectively believed. The beliefs appeared to be unquestionable as the greater majorities of every subgroup favored this category.

Plans for the Use of Contraceptives

Use of contraceptives among different professional students was explored to check whether there was a pattern followed consistent with their attitudes toward the family planning. As Table 4 reveals, the overall significant chi square for the professional difference was found to be beyond the .0001 level. Looking at the individual chi squares for the three categories, both groups of students in health professions were more likely to favor the "yes" and the "no" responses whereas a reversed position was observed for the "undecided" responses. The greater proportion of the education group responded for the "undecided" category than the other two groups in health professions. An interpretation may be made that the medical and the nursing students in general, were more likely to be definite about their plans for use of contraceptives in the future on the basis of their knowledge about the various kinds of contraceptives available. The education students on the other hand, were not able to respond clearly due to the lack of information and knowledge about particulars of contraceptives in general, which might have caused the uncertainty of their plans for use of contraceptives.

The sex difference was not observed at the statistically significant level of .05.

Table 4. Percentage and Frequency Distribution of Responses by Professional Specialization with Regard to Plan for Use of Contraceptives

Plan for use	Education	Nursing	Medicine	Total	Chi square	P less than
Yes	474(56.0)	193(66.1)	352(63.5)	1,019(60.2)	5.99	.05
No	116(13.7)	55(18.8)	149(26.9)	320(18.9)	30.91	.0001
Undecided	256(30.3)	44(15.1)	53(9.6)	353(20.9)	74.34	.00001
Total	846(50.0)	292(17.3)	554(32.7)	1,692(100.0)	111.24	.00001

Note: For each measure, the figure in the parenthesis is the percentage.

When the class level was introduced, it was found that the upper classmen were more in favor of planning for the use of contraceptives in the future but when it came to denying the plan, or being undecided about it, they were less inclined than the lower classmen.

It was concluded from the evidence in the data, that the professional difference was found to be highly significant in "no" and "undecided" responses but not in "yes" responses. More specifically, the students in the health professions were more likely to be in favor of denying the plan and less inclined to be "undecided" about it than the students in the teaching profession. But when it came to having a plan for using of contraceptives, the professional differences disappeared. The possible interaction of class level was eliminated by holding it constant while professional differences were measured. The sex factor did not seem to affect the difference. This particular finding could be interpreted as a partial impact of family planning content in curriculums which had been implemented in the nursing and the medical schools.

Motives for Limiting Family Size

Since there was more than 50 percent of this study population which supported the idea of the family planning for a two-child family, an attempt was made to explore the motives of these students that provided the strongest incentive for them to limit family size.

As the data in Table 5 indicated, the overall significant chi square was observed for the professional differences in terms of their responses to different categories of incentives for limiting family size (p less than .00001).

Taking responses of "mother's health" and "economic base" only, the education students were decidedly more in favor of choosing the "mother's health" as an important incentive for limiting family size than nursing or medical students. For the "economic base" as an incentive, however, the medical students were more inclined than the education or nursing groups. In the "better job of child-rearing responses, the nursing group were decidedly more in favor of choosing it as an incentive for family limitation in terms of number of children than the other two groups. The

Table 5. Percentage and Frequency Distribution of Responses by Professional Specialization with Regard to Motives for Limiting Family Size

Motives for Limiting family size	Education	Nursing	Medicine	Total	Chi square	^P less than
Facilitate ambitions	52(6.1)	10(3.4)	28(5.1)	90(5.3)	3.16	N. S.
Better job of child-rearing	410(48.5)	180(61.6)	273(49.3)	863(51.0)	7.63	.05
More leisure opportunities	125(14.8)	62(21.2)	101(18.2)	288(17.0)	5.98	N. S.
Mother's health	103(12.2)	13(4.5)	33(6.0)	149(8.8)	22.31	.0001
Economic base	25(3.0)	5(1.7)	43(7.8)	73(4.3)	23.56	.0001
Avoid over-population	103(12.2)	20(6.9)	58(10.5)	181(10.7)	5.84	N. S.
Other reasons	28(3.3)	2(0.7)	18(3.2)	48(2.8)	5.79	N. S.
Total	846(50.0)	292(17.3)	554(32.7)	1692(100.0)	74.17	.00001

Note: For each measure, the figure in the parenthesis is the percentage.

discrepancy in the actual proportions of this category was not great.

Sex and class level. A highly significant overall sex difference was observed at the .00001 on a chi square test and the category of "avoid over-population" responses was the major source of the overall significant chi square value. The male students were decidedly more in favor of choosing "over-population," "mother's health," or "economic base" as important incentives for limiting family size while the female students were more likely to choose "better job of child-rearing" or "more leisure opportunities." In categories of "mother's health" and "economic base" responses, interactions between sex and professional specialization were not detected. In "more leisure opportunities" responses, the medical group was more likely to favor this as incentive than the education group in the male section. In the female section, no apparent professional differences were observed. The class level was not found to be a significant factor.

Summary. Professional differences in attitudes and beliefs toward family planning and plans for using contraceptives were observed at significant levels as expected. In detailed analysis, however, the sex was found to be the significant source of the professional differences in the attitudes toward family planning. For the item on "use of contraceptives" in the future, professional differences were observed in all categories, "yes," "no" and "undecided" with regard to the future of use contraceptives.

Health oriented professional groups were decidedly more inclined to reveal their negative responses while the education oriented group was more likely to be in favor of choosing "undecided" responses. An explanation was given that since the education students might have been less informed about the particulars of contraceptives available, the greater proportion of the education students responded to the category of "undecided."

The nursing and medical students were more likely to have a plan for the future use of contraceptives than the education students as expected. Sex and class level were found to be not significant variables in the "use of contraceptives" item.

In short, the majorities of students in three professional fields studied did definitely favor the idea of family planning and future contraceptive uses. The significant professional difference was observed that the nursing and medical students were more likely to be in favor of family planning and future use of contraceptives than the education students. It was, therefore, concluded that the subhypothesis one was supported.

Pertinent areas of family planning were also explored. The discrepancy between the perceived government purpose and personal beliefs with regard to the family planning program was detected. The tendency of stronger support from the nursing and female groups in terms of the family planning idea and contraceptive use suggested implication of future program orientation toward family planning.

Attitudes toward Abortion

Sub-hypothesis Two: Students in the nursing and medical professions are more likely to have positive attitudes toward abortion in general than the students in the teaching profession.

In examining sub-hypothesis two, effects of professional specialization on the variable of "abortion" in terms of mean scale values were measured. The variable was defined in terms of ten attitude scale items as shown in Figure 1.

A one-way analysis of variance was performed to confirm the existence of professional differences in the mean scale values on the abortion variable. For an alternative to a two-way analysis of variance, a nested design was used in order to eliminate possible interactions.

In analysis of variance on abortion, an overall significant F ratio of 13.15 was found at the .0001 level for professional differences in total mean scale values. The observed means for the education, nursing, and medical groups were 34.77, 36.76, and 36.11 respectively. The maximum possible scale values would be 50.0 for the total abortion part of the questionnaire. Since Likert's five-point scale values were applied in this study, a value of 50 points, 40 points, 30 points, 20 points, and 10 points represented for "strongly agree," "agree," "undecided," "disagree," and "strongly disagree" respectively. Obtained mean scale values which were found to be above 30 points would mean the attitude was in the positive direction. Duncan's multiple range tests were performed to compare pairs of group means. It was found that both the means of the nursing and of the medical groups were higher than that of the education group at the .05 level. The mean scale values between the nursing and the medical group fell in the homogeneous subset of groups. In other words, both groups of students in the health professions had more positive attitudes toward abortion in general than did the education group.

Sex and class level. It was observed that the female students were more positive about "abortion" in general than the male students although the difference between the two mean scale values was very small. The male medical students showed more positive attitudes than the male education students. Among female groups, there were no statistically significant mean differences in scale values at the .05 level for the obtained F ratio.

The class level appeared to have some association with student's responses to the abortion variable. Students in upper classes in general had higher scale values than the students in the lower classes although the mean scale values of freshmen students lie in between the two subsets of means. The class level was controlled to eliminate possible interactions and then the professional difference was examined. As the result, no consistent pattern of differences was found although some differences appeared to exist in different class levels.

An effort was made to identify the major sources of professional differences in the "abortion" variable, and mean values of ten individual abortion scale items were examined. From detailed examination of the composite of the individual items included in the abortion variable, it was found that the education group, except three items, showed consistently lower mean scale values than either the medical or nursing groups and the differences of group means were significant for F ratio with levels of probability which ranged from the .05 to the .0001 level, and were confirmed by Duncan's test at

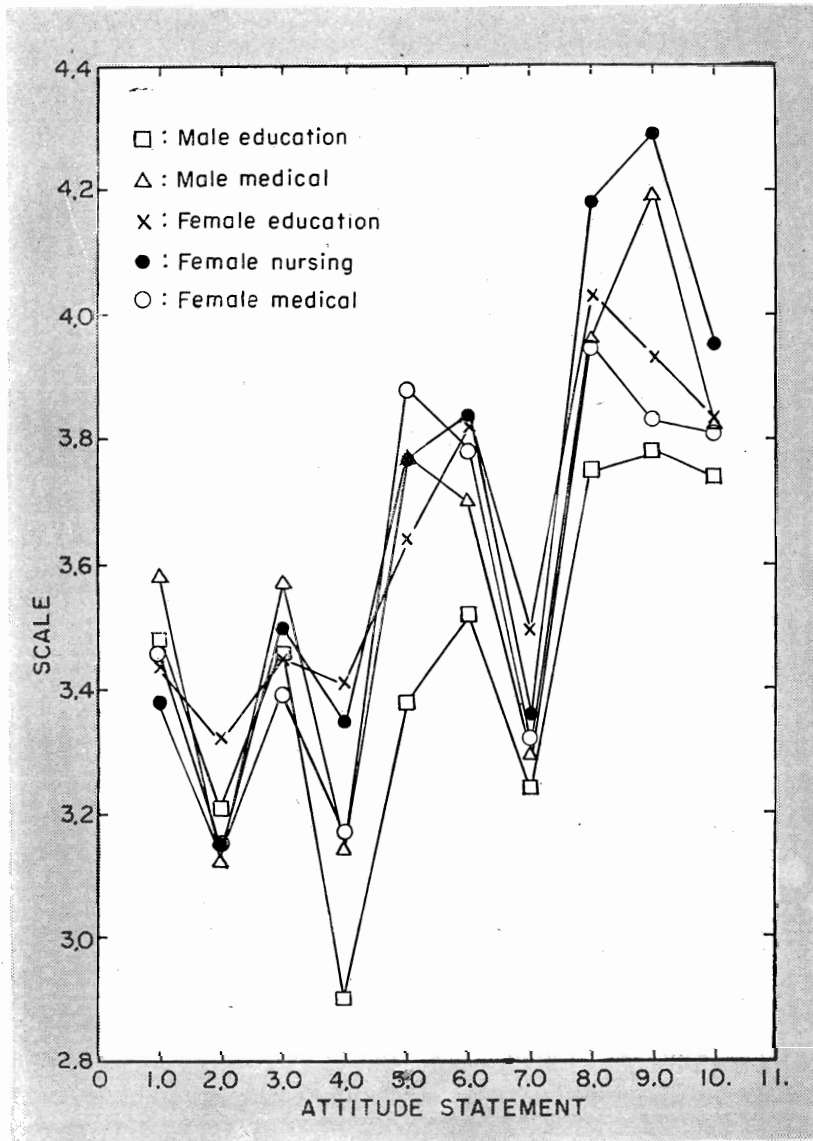


Fig. 1. Profiles of Mean Scale Values of Each Attitude Statement of the Abortion Variable for the Male and Female Students by Professional Specialization.

Attitude Statement

1. Legalization of abortion practice in Korea was a right thing to do.
 2. The legalized abortion law will be an effective method of helping curb population growth in Korea.
 3. An abortion should not be granted to a wealthy family where they can afford another child.
 4. A decision as to an abortion should be solely made by the woman.
- Possible reasons for abortions—
5. The mother's health state is not fit for carrying the pregnancy.
 6. The family cannot afford another child economically.
 7. The woman is not legally married.
 8. The pregnancy is the result of a rape.
 9. There are medical reasons to believe that the fetus is or will be deformed.
 10. The family does not want any more children.

the .05 level. The three items which showed no professional differences were statements, as follows: 1) A legalized abortion law will be an effective method of helping curb population growth in Korea, 2) An abortion should not be granted to a wealthy family where they can afford another child, and 3) An abortion should be performed when the woman is not legally married.

When a profile for abortion attitude scales (see Fig. 1) for three professional groups by sex was examined, item 4, "a decision as to an abortion should be solely made by the woman" was the only item which was found to have a negative value marked by the male education group (mean values, 2.9 for education, 3.1 for medicine, p less than .002). Duncan's test at the .05 level confirmed the significance of the difference.

In general, items with higher mean values were: "The pregnancy was the result of a rape," "There are medical reasons to believe that the fetus is or will be deformed," and "The family does not want any more children." Although professional differences were observed at statistically significant levels, the positive attitudes toward abortion displayed by the majorities of three groups suggested a trend toward a more permissive attitude toward abortions in the general population.

Items with lower mean scale values which were just above the neutral point, were 1) a legalized abortion law will be an effective method of helping curb population growth in Korea, 2) a decision as to an abortion should be solely made by the woman, and 3) an abortion should be performed when the woman is not legally married. The first and third items were found not to be statistically significantly different in terms of professional specialization. The responses to the second item (a decision as to an abortion should be solely made by the woman) was observed to be significantly different among three professional groups at the .001 level for the obtained F ratio which was confirmed by Duncan's test at the .05 level.

When the findings of this study in terms of abortion as a woman's option was compared to the finding of the study conducted by Werley et al. on health professional in the United States,²³⁾ the least supporting group in this study was not the nursing or female groups but the male education group. The female and nursing group in this study was found to have more positive attitudes toward abortion than the male group whereas the opposite was true in Werley's study for the nursing group. (see Fig.1)

Summary. As it was predicted the evidence from the data analysis supported the proposition that the health professionals had more positive attitudes toward abortion in general than did students in the teaching profession. More specifically, the nursing group was more likely to have positive attitudes toward abortion than the education group. The medical group in general displayed more positive attitudes toward abortion than the education students although they were less positive than the nursing group. The sub-hypothesis (Students in nursing and medical professions are more likely to have positive attitudes toward abortion in general than the students in the teaching profession.) thus was accepted from the data presented above.

The sex factor had slightly obscured the relationship of the general differences of

professions. The strength of professional differences, however, was sufficient to overcome the sex factor. A slight positive relationship was observed between class level and mean scale values of student's responses on abortion. Possible interactions between class level and sex, and professional specialization were reduced to a minimal level by using a nested design.

Attitudes toward Population Education

The variable "population education" was composed of five attitude scale items as

Table 6. Mean Scale Values of Education, Nursing, and Medical Students on Each Statement of the Attitude Scale on "Population Education"

Statements	Education	Nursing	Medicine	F prob.	Duncan's test at the .05*		
1. Information about all forms of birth control method should be available to college students on campuses through the student health services.	3.6950 (0.9775)	3.8048 (0.8329)	3.9621 (0.8861)	.0001	3.6950	3.8048	3.9621
2. Birth control and family planning information, relative to population problems should be disseminated through various channels including the classrooms of high schools.	3.6052 (1.0030)	3.7363 (0.8053)	3.9025 (0.8576)	.0001	3.6052	3.7363	3.9025
3. Public education must teach for individual responsibility relative to family planning and population problems.	3.7541 (0.9055)	3.9144 (0.6808)	3.9368 (0.8363)	.0001	3.7541	3.9144	3.0368
4. To help youth to be better prepared for the reproductive behavior, sex and family life education should be included in various levels of school curriculum with appropriate content accordingly.	3.9468 (0.8855)	3.1747 (0.4977)	4.1264 (0.7715)	.0001	3.9468	4.1264	4.1747
5. All curriculums of higher education in Korea should include population related area to have graduates be better prepared for population related social situations.	3.7884 (0.9941)	4.0103 (0.6709)	4.0560 (0.7810)	.0001	3.7884	4.0103	4.0560

Note: For each measure, the figure in the parenthesis is the standard deviation.

*Each broken line represented homogenous subset of groups.

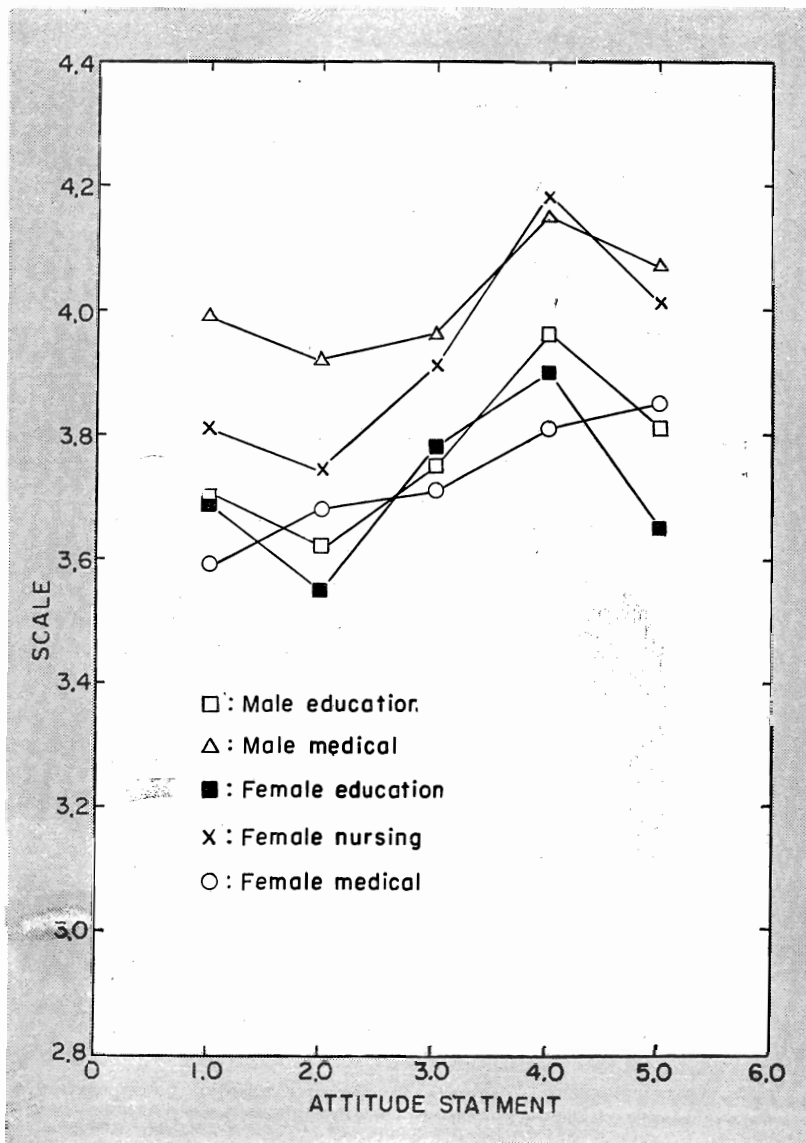


Fig. 2. Profiles of Mean Scale Values of Each Attitude Statement of the Population Education Variable for the Male and Female Students by Professional Specialization.

Attitude Statement

1. Information about all forms of birth control method should be available to college students on campuses through the student health services.
2. Birth control and family planning information, relative to population problems should be disseminated through various channels including the classrooms of high schools.
3. Public education must teach for individual responsibility relative to family planning and population problems.
4. To help youth to be better prepared for the responsible reproductive behavior, sex and family life education should be included in various levels of school curriculum with appropriate content accordingly.
5. All curriculums of higher education in Korea should include population related area to have graduates be better prepared for population related social situations.

shown in Fig.2. The mean attitude scale values of three professional groups on the "population education" variable were compared in examining the sub-hypothesis three. Students in the nursing and medical professions are more likely to favor population education than the students in the teaching profession. The analysis of variance of attitude scale values on the "population education" variable revealed consistently the lower mean scale values of education group (18.79) compared to those of the medical (19.98) and nursing (19.64) groups. The professional difference was significant at the .0001 level for the obtained F ratio and the differences of pairs of group mean scores were confirmed by Duncan's test at the .05 level. Sex and class level were controlled separately while professional differences were examined. Neither the sex nor the class level was found to be influencing responses in this variable. The sources of professional differences in the attitude variable of "population education" were found to be distributed to all individual scale items which were the composite of the variable as shown in Table 6.

When the profile of mean values of each professional group by sex was examined, the following characteristic pattern was observed (see Fig.2). The male medical group and the nursing group showed a similarity in their profiles and both groups marked higher mean values than the other three groups. The profile of the education group for both sexes appeared to show a similar trend, and mean scale values of these groups were below the those of male medical or female nursing groups. The profile of the female medical group appeared to have a unique pattern which did not follow any of the patterns shown by the other four groups. It could be hypothesized that the presence of a population related curriculum influences positively attitudes of students toward population education, but this hypothesis could be confirmed only by another study which is beyond the scope of the present study. Sub-hypothesis three was supported with the data presented above.

A professional difference in beliefs in "population education as a better approach to help solve population problems in Korea" was not observed. The majority of respondents believed "population education" was a better approach to the problems. For the specific content of the population education such as sex education and family life education, the majority (57.6%) favored an "educational channel" through which sex and family life education better be implemented, followed by "adult education" (19.5%).

Attitudes toward Equality of Sexes

Since the equality of sexes undoubtedly affects the attitudes toward family planning, the following sub-hypothesis was formulated and examined.

Nursing students are more likely to display positive attitudes toward equal opportunities in terms of education, employment, and equality of the sexes than the medical or the education students. The attitude variable on "equality of sexes" was composed of four attitude scale items as shown in Fig.3. Five additional questions which were related to "equality of Sexes" were asked for the further exploration of student's attitudes and beliefs toward equality. The five questions asked were: 1) Reasons for a married woman's

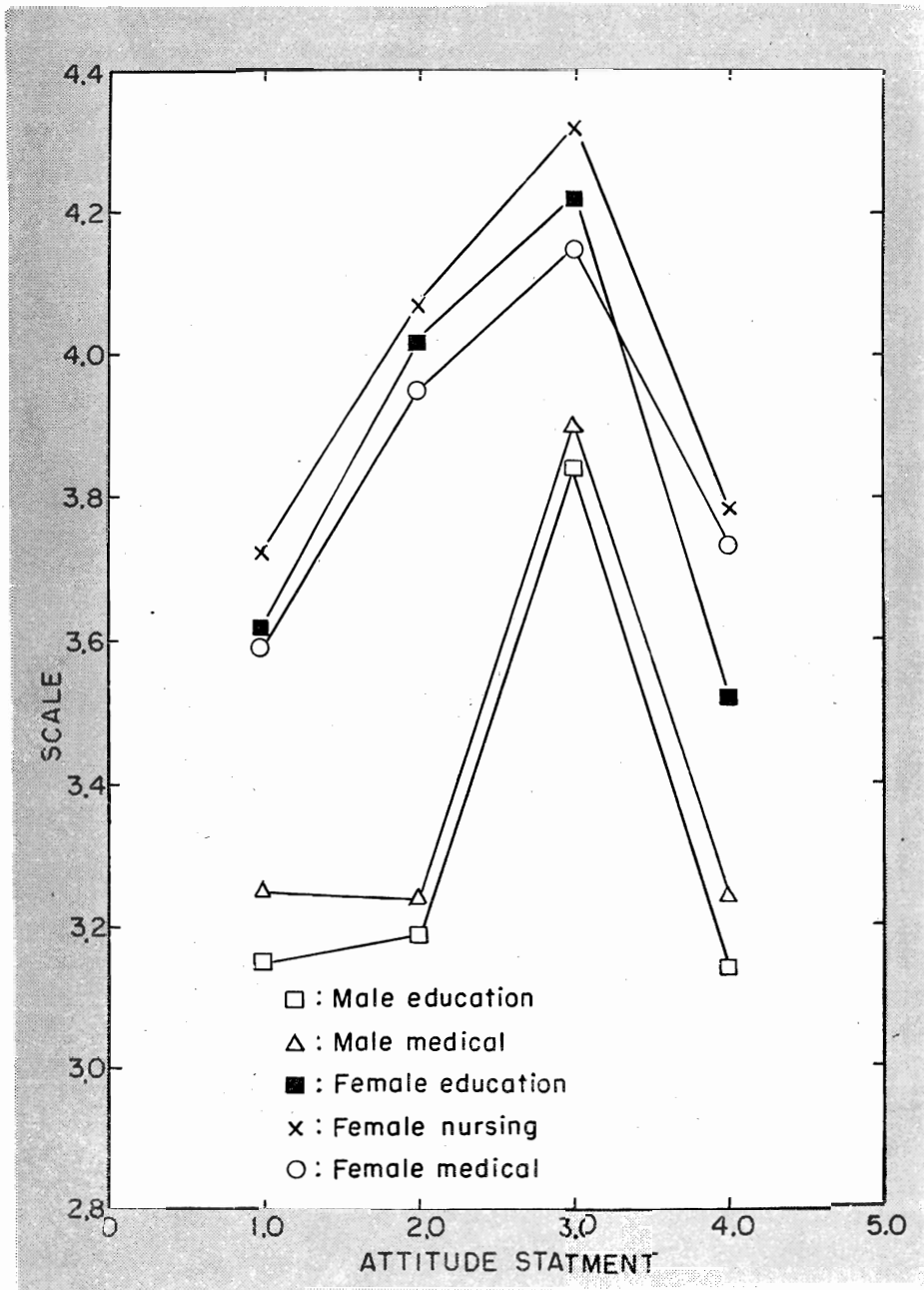


Fig. 3. Profiles of Mean Scale Values of Each Attitude Statement of the Equality of Sexes Variable for the Male and Female Students by Professional Specialization.

Attitude Statement

1. Daughter-Son without distinction; Stop at two and bring them up well.
2. Boys and girls in Korea should be given the equal occupational opportunities.
3. Boys and girls in Korea should be given the equal opportunity for education.
4. Do you approve women's careers after marriage?

career, 2) The level of education for a spouse, 3) The level of education for a girl, 4) The level of education for a boy, and 5) The responsibility for controlling pregnancy.

The summary data and the analysis of variance of attitude scale values for "equality of sexes" by professional groups shown in Table 7 indicated that the mean differences of the three groups were significant at the .0001 level according to F test, and Duncan's test confirmed the significant difference of pairs of group mean values at the .05 level. The mean scale value of the nursing group (15.88) was significantly different from the mean scale values of the medical (13.76) and the education (13.64) groups at the .05 level according to Duncan's multiple range test. There was no significant mean difference between the education and medical groups.

When sex was controlled, no significant mean difference was observed between the education and the medical groups in the male section. In the female section, Duncan's test indicated that the mean value of the nursing group (15.88) was significantly different from that of the education group (13.64). The mean difference between the medical and the nursing or between the education and medical groups was not observed at a statistically significant level.

The sources of significantly different mean scale values were found to be all individual attitude items which were the composite of the variable of "equality of sexes." In all individual items, mean values of the female group were consistently higher than those of the male group at the .0001 level of the obtained F ratio and Duncan's test at the .05 level.

When mean scale values of different professional groups for female and male were plotted on the attitude profile as shown in Figure 3, the differences of sex in professional groups became very clear. Class level did not influence responses. In summing, the nursing group showed a higher mean value than the medical or the education groups.

Table 7. Summary Data and Analysis of Variance of Attitude Scale Values on "Equality of Sexes" for Education, Nursing, and Medical Students

	Education	Nursing	Medicine
Number	846	292	554
Mean	13.6371	15.8801	13.7617
Standard deviation	2.9080	1.7653	2.6660

Source	d.f.	Sum of squares	Mean squares	F ratio	P less than
Between groups	2	1167.8750	583.9375	82.306	.0001
Within groups	1689	11983.0000	7.0947		
Total	1691	13150.8750			

Homogeneous subsets* on Duncan's multiple range test for the .05 level:

Subset 1- Group mean: *Education*=13.6371 *Medicine*=13.7617

Subset 2- Group mean: *Nursing*=15.8801

* Subsets of groups, no pair of which have means that differ by more than the shortest significant range for subset of that size.

For the sex difference, the mean value of the female students was significantly higher than that of the male students. Therefore, the nursing group, with a combination of the female sex and the professional factors, undoubtedly showed the highest mean scale value of all groups. Sub-hypothesis four, thus, was supported.

Reasons for the married woman's career: The sex difference with regard to the reasons for the married woman's career was highly significant at the .0001 level of chi square test (value=124.33). The male students gave higher priority to the category "economic reason" as an important reason for a married woman's career whereas the higher priorities of the female students were found in "enlightens marriage" and "keep up with society" as important reasons for married women's careers.

A professional difference was found only in the male section when specialization was introduced while sex was held constant, but no significant difference was found in the female section. The male education students gave a higher priority in the category "economic reason" whereas the male medical students favored "woman's right for a career" as an important reason for the married women's careers. In terms of the equality of rights and opportunities for both sexes, the male medical students were more likely to recognize the woman's career as her right than the male education students. This finding seemed to suggest the future possibility of an increased number of married female professionals in health fields.

The level of the spouse's education: The majority (84.6%) of respondents desired the level of higher education for their spouses while the minority (2.5%) chose elementary education. However, a higher proportion of the male medical students responded to "higher education" category than of the male education students although the majority of both groups favored the "higher education". In the female section, a zero response of nursing group was observed in the category of "secondary education." In short, the desired educational level for the future spouse, the female and the nursing group desired the higher level of education for their future spouses than the other two male groups did. The class level did not affect the dependent variable.

Minimum desirable educational level for a girl. The female group of students were more likely to be in favor of choosing the higher level of education for a girl to be a good citizen and an efficient individual in Korea. The male education students were more likely to choose the level of education for a girl compared to the other two groups, but, when it came to the higher level of education for a girl, no distinct feature was found in terms of sex and professional specialization. A pattern of bimodal distributions in the minimum desirable educational level for girls was observed. (high school and university level). No class level difference was observed.

Minimum desirable educational level for a boy. The majority of respondents favored the "university or higher" level of education for a boy and the proportion exceeded that of the responses observed in the desired educational level for girls. The female students were more likely to favor a higher level of education for boys than the male students. The professional difference was observed only in one category that the male education students appeared to favor a lower minimum level of education for boys

than the male medical students. No professional difference was observed in female students.

Responsibility for controlling pregnancy. The majorities of both sexes, 81.1 percent and 85.3 percent for the male and female students respectively indicated that the primary responsibility of controlling the pregnancy rested with both the man and the woman. No sex difference was found at the significant level. The professional difference was found in the "do not know" category for the male section that the male medical students responded zero to this category. The female medical students were more likely than the nursing students to indicate the primary responsibility rested with the "man."

Fertility values

Questions related to fertility values in terms of the ideal, desired, small, and large, and to the actual number of children in the family in which the student had been raised were asked for the testing of the following hypothesis:

Students in the teaching profession value larger families more than do students in the health professions. In addition, the student's birth order position among his siblings and the size of community which students considered as their hometowns in their high school days were asked as these were relevant in studying the relationship between fertility values and professional specialization.

Sex and class level were controlled when the effect of professional differences on fertility values were measured. The percentage and frequency distribution of responses to each dependent variable were computed and the chi square test was employed. An alpha level of .05 was used as a criterion for statistical significance.

Professional specialization. The education group appeared to desire three children while the nursing and medical groups favored two children as their desired number. Differences in actual proportions in the "three" responses between the education and the medical groups, however, were very small. The nursing group was decidedly more in favor of a smaller number of children than the other two groups and the desired family size of the medical group was smaller than that of the education group. (see Table 8 and Fig. 4).

Sex. The sex difference was observed as highly significant at the .00001 level on

Table 8. Percentage and Frequency Distribution of Responses by Professional Specialization with Regard to Desired Number of Children

Desired number of children	Education	Nursing	Medicine	Total	Chi square	P less than
One or less	79(9.3)	24(8.2)	48(8.7)	151(8.9)	0.24	N. S.
Two	293(34.6)	166(56.9)	222(40.0)	681(40.3)	26.35	.001
Three	308(36.4)	73(25.0)	181(32.7)	562(33.2)	8.67	.02
Four or more	133(15.7)	22(7.5)	92(16.6)	247(14.6)	12.35	.01
No	33(3.9)	7(2.4)	11(2.0)	51(3.0)	4.24	N. S.
Total	846(50.0)	292(17.3)	554(32.7)	1692(100.0)	51.85	.001

Note: For each measure, the figure in the parenthesis is the percentage.

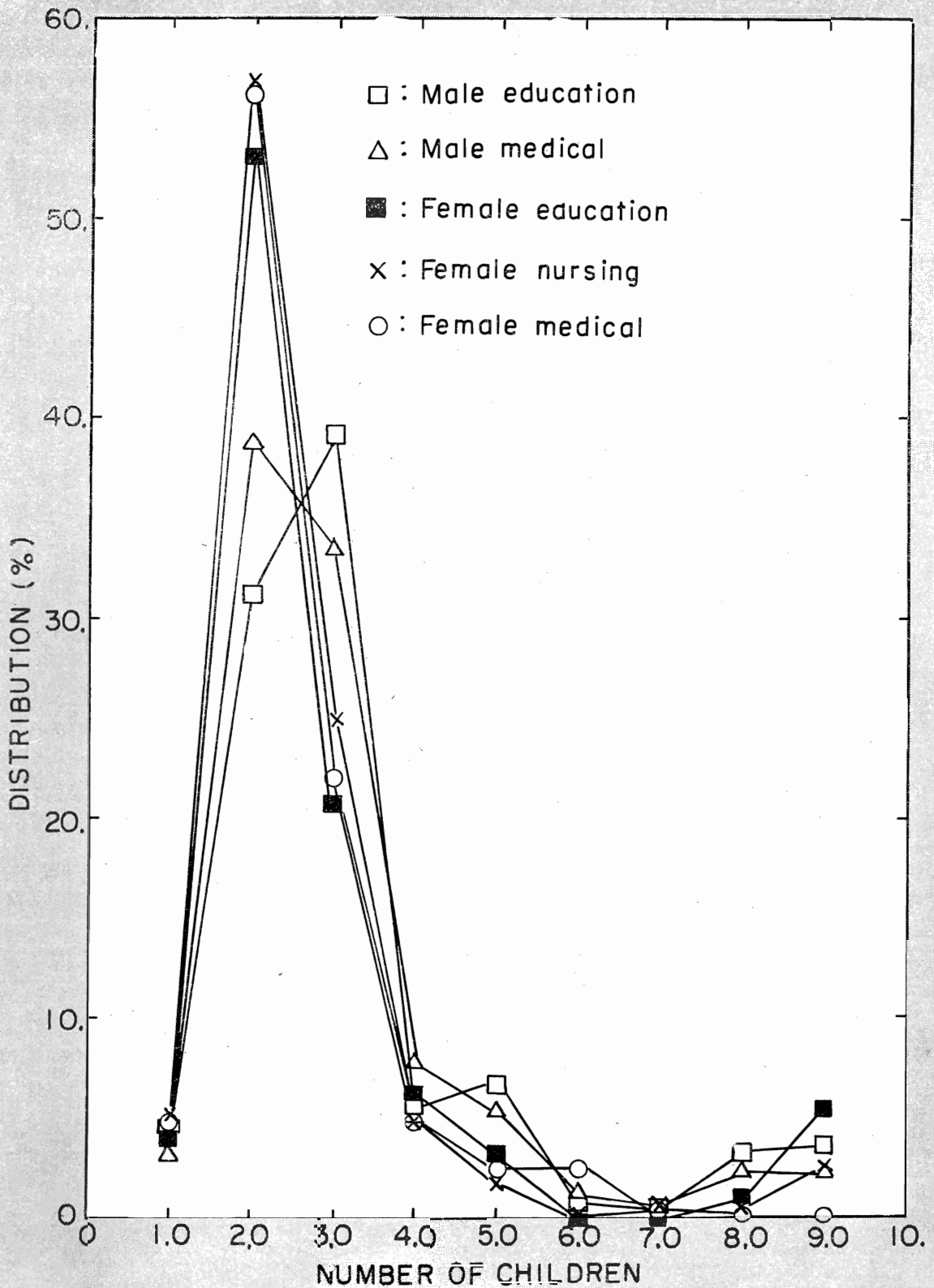


Fig. 4. Profile of Percentage Distribution of the Male and Female Students by Professional Specialization with Regard to the Desired Number of Children.

the chi square test (value=72.55). The pattern of the female responses was similar to that of the nursing group while that of the male responses was similar to that of the education group previously observed. When sex was controlled, The category of the "two" responses was found to be significant for the professional difference at the .05 level on a chi square test. In other words, the male medical students were more likely to favor "two" as a desired number of children than the male education students, but when it came to the "one or less," "three," or "four or more" responses, no differences of professional specialization were found. There was no significant professional difference in the desired number of children in female groups. The class level was found not to have a statistically significant affect on desired fertility values of respondents.

Position of birth order in sibilings. The eldest child especially the eldest son of a family in the Korean culture is highly valued as he is customarily given the responsibility and privilege attached to family affairs in relation to financial and other related matters. When he has a large number of young sibilings and old parents who have no financial ability to look after their children, the burden is customarily rested on the eldest son, or on the eldest daughter when the eldest son of the family is very much younger than the eldest daughter. In other words, the eldest sons of most families in the Korean culture are generally given more responsibilities than privileges. In light of these factors, the desired number of children for the eldest may be expected to be different accordingly.

As the data shown in Table 9, the majority of the "eldest daughter" group was found to desire two children whereas the "eldest son" group desired three children. The sex variable seemed to be operating in these two categories. When the responses of the "only son" and "only daughter" groups in categories of the "two" and "three" responses were compared, nearly a reversed position to the responses of two eldest groups was found. In other words, a greater proportion (34.5%) of "only daughter" group desired three children and a less proportion (13.8%) desired two children whereas the same proportion (35.0%) of the only son group desired two and three children. (see Table 9).

Number of sibilings. The number of students' sibilings was introduced to see whether it influenced responses with regard to the desired number of children. There was no relationship between the variables, the number of students' sibilings and their desired number of children at a significant level. The actual proportions revealed that the largest proportion of students, regardless of the size of families in which they had been raised, in terms of number of sibilings, favored two children which was followed by three children. The students from the families with less than two children, however, were found to have the same proportion (34.6% each) in two and three children desired. The finding indicated that a further study was necessary in order to establish a firm relationship between the two variables, the number of sibilings and the desired number of children. One's desired number of children may be influenced more by social forces than intra-family forces in terms of number of children to which

Table 9. Percentage and Frequency Distribution of Responses by the Student's Position among Siblings with Regard to the Desired Number of Children

Desired number of children	Eldest son	Eldest daughter	Only child (son)	Only child (daughter)	In between, youngest	Total	P*
							less than
One or less	37(6.7)	12(6.4)	8(10.0)	6(20.7)	88(10.4)	151(8.9)	.05(11.16)
Two	195(35.5)	105(55.6)	28(35.0)	4(13.8)	349(41.3)	681(40.2)	.001(19.51)
Three	217(39.5)	49(25.9)	28(35.0)	10(34.5)	258(30.5)	562(33.2)	.02(11.78)
Four or more	89(16.2)	16(8.5)	15(18.7)	8(27.5)	119(14.1)	247(14.6)	.05(11.43)
No marriage	11(2.0)	7(3.7)	1(1.3)	1(3.5)	31(3.7)	51(3.0)	N. S. (3.38)
Total	549(32.4)	189(11.2)	80(4.7)	29(1.7)	845(49.9)	1692(100.0)	.0001(67.26)

Note: For each measure, the figure in the parenthesis is the percentage.

* Chi square value is in the parenthesis.

one had been exposed.

Size of community and desired number of children. Size of community which was considered to be students' hometowns in their high school days was checked as to whether it affected the dependent variable. The data suggested that students from hometowns of more than one million population in their high school days were more likely to desire two children than students from hometowns of less than one million population. In the "three" responses, the position became reversed so that the proportion (30.7%) of students from the community of more than one million population was smaller than those students from the other two communities of less than one million population in actual proportions. The statistical difference, however, was not significant at an acceptable level.

Opinions on women's careers and the desired number of children. Opinions on a woman having a career after marriage was introduced as an independent variable to see whether the positive or negative opinion in the subject matter affected responses to the desired number of children (see Table 10). As the data shows, students who approved the proposition of women's careers appeared to desire a smaller number of children than those who disapproved. The higher proportion of students who were

Table 10. Percentage and Frequency Distribution of Responses by Opinions on Women's Careers with Regard to the Desired Number of Children

Desired number of children	Do you approve a woman having a career after marriage?				Chi square	P less than
	Agree	Undecided	Disagree	Total		
One or less	84(8.4)	21(8.2)	46(10.4)	151(8.9)	1.57	N. S.
Two	444(44.6)	111(43.6)	126(28.6)	681(40.3)	19.96	.001
Three	319(32.0)	76(29.8)	67(37.9)	562(33.2)	4.34	N. S.
Four or more	119(12.0)	41(16.0)	87(19.7)	247(14.6)	13.25	.001
No marriage	30(3.0)	6(2.4)	15(3.4)	51(3.0)	0.61	N. S.
Total	996(58.9)	255(15.1)	441(26.0)	1692(100.0)	39.73	.0001

Note: For each measure, the figure in the parenthesis is the percentage.

indecided about was also found in the "two" responses than in the "three" responses.

Ideal number of children. The relationship between the ideal number of children and the professional specialization was significant at the .00001 level on a chi square test. In other words, the nursing and medical groups were more likely to have a concept of an ideal number of children as two whereas the education group was more likely to choose three as an ideal number of children in a family. An inverse relationship between the ideal number of children and responses was found in the nursing and medical groups as the proportions decreased when the number increased. The education group failed to follow a similar pattern as their peak proportion was in the three children. The female students were decidedly more in favor of choosing two children whereas the male students were more likely to choose three children as the ideal number of children. The professional difference was persistent in the male group when the sex was controlled while the female groups failed to show the similar pattern.

Concept of small family. The professional difference was not found in the male section with regard to the number of children in a small family. In the female section, the overall significant difference of professional groups was observed at the .005 level. The female medical students (53.6%) were more likely to choose the "one or less" responses than the female education (34.6%) or nursing (27.0%) groups. But when it came to other categories of responses such as "two," "three," or "four or more," no distinct trend of professional differences was found.

Concept of large family. Although the professional differences in this item revealed the significance level, they did not have a consistent trend that would allow possible interpretation.

Childless marriage. The possibility of a childless marriage was proposed to see whether different groups perceived it as a problem to marriage. The male medical group was more likely to see no problem in a childless marriage than the male education group, and the difference was significant at the .001 level. The male education students (67.3%) were, conversely, more likely to see a problem in a childless marriage than the medical students (56.7%) as the difference was significant at the .05 level on a chi square test.

A higher proportion of the female medical group chose "no reaction" responses compared to the other two groups. The female education group, however, showed a higher proportion than the nursing group in "no reaction" responses. In the category of the "would be a problem" responses, a predominant proportion of the nursing group (74.3%) was found and female education group (53.1%) followed next. In short, the nursing group was more likely to consider that the childless marriage "would be a problem" than the female medical group. The female education group was found to be less likely than the nursing group but more likely than the female medical group to consider the childless marriage as a problem.

Profiles of fertility values in ideal, desired, small, large and actual number of children. As Fig. 5 revealed, the percentage distribution of the desired fertility value of total students was very close to that of the ideal value of two children. Two children was

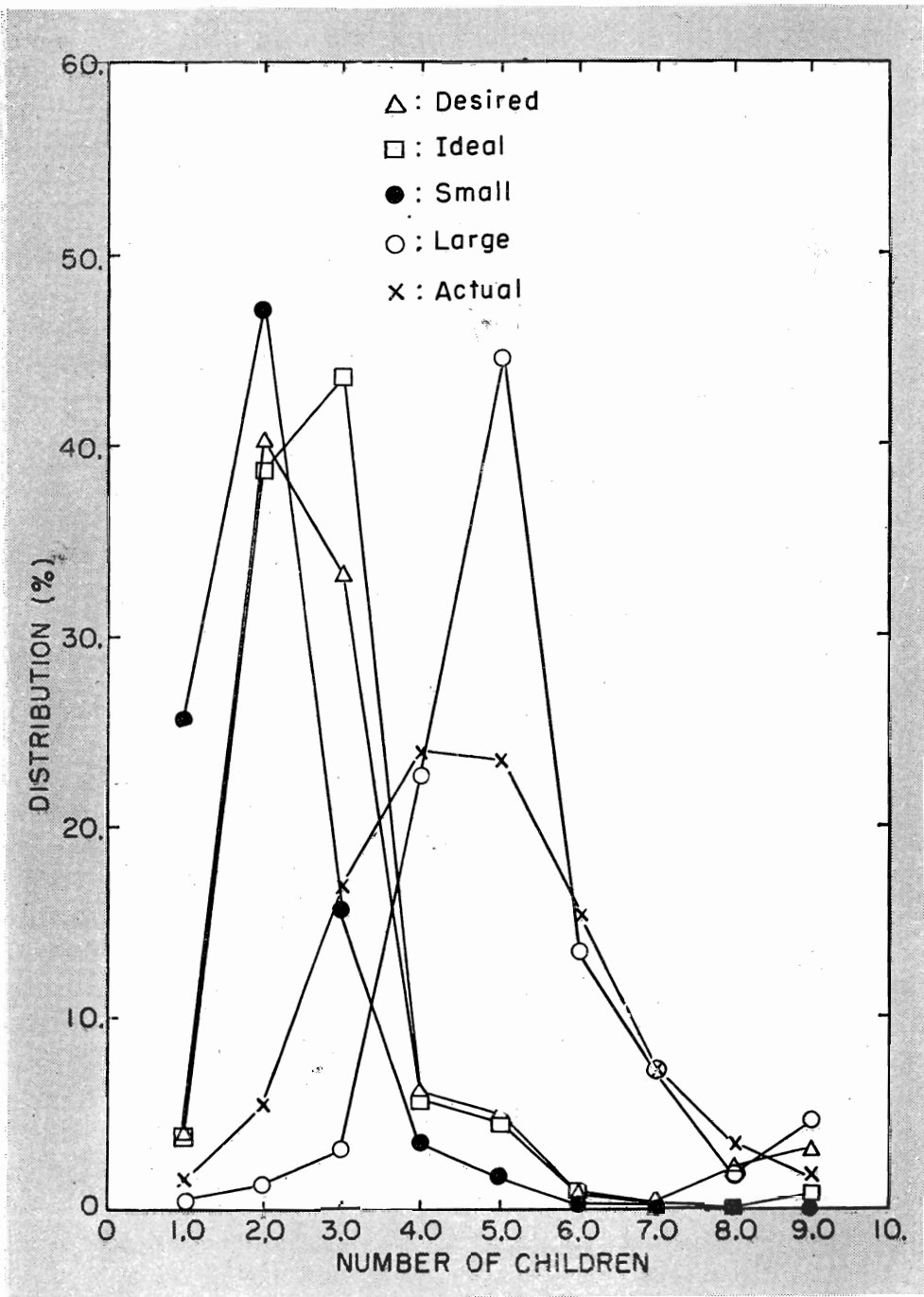


Fig. 5. Profiles of Percentage Distribution of Total Student Population Relating Desired Number of Children to Variables of Concept of Large Family, Concept of Small Family, and Ideal Family Size.

also considered to be a small number of children by these students. The highest proportion of responses in the "ideal" number was found in the three children. The discrepancy between the ideal, desired, and small number of children was widely apart in the "three children" responses. In the "large" number of children, it revealed a peak in the five children and the distribution of "actual" number of siblings appeared almost normally distributed with its two peaks in four and five children categories.

For the profiles of fertility values for different professional groups by sex, the male education students appeared to consider two children a small family, three for the ideal and desired family size respectively. Their actual number of siblings appeared to have a normal distribution with 4-5 children on its peak distribution.

The profile of the male medical students with regard to their fertility values revealed the two children for a small, ideal, and desired family size respectively. The large number of children and actual number of siblings were the same as those of the male education students.

General picture of profiles for male groups, however, suggested that concepts of family sizes between ideal, small, and desired, in terms of number of children were all different as it seemed difficult to obtain a general agreement. The concept of "large" family size, however, appeared to have an agreement for a five-child family.

The profiles of the three female groups, the data revealed a similar pattern for the ideal, desired, and small family size except the small family size marked by the female medical students as they considered it the one-child family. The profile of the nursing group the small and desired family size appeared to be almost identical and the ideal family size was very close to them. The female education students appeared to have a similar pattern to the nursing group except that a wider gap was observed in between the three family sizes.

Concerning the concept of "large" family size and the actual family size in which students had been raised, for the three female groups, an agreement on the large family size was apparent as the largest proportion of each group agreed with "five children." There seemed to be no relationship between the number of siblings in a family which one had been raised and the concept of "large" family size according to the evidence found in this study.

The largest proportion of the nursing and female medical students were from four-child families whereas the largest proportion of the female education students came from five-child families. But, the largest proportions of these three female groups all agreed that a five-child family was a large family regardless of the size of family in which they had been raised. It seemed to require a further study in order to establish a firm relationship between concepts of small and desired, of ideal and desired, of small and ideal family sizes, and between concept of "large" and the actual family size. At any case, it became apparent from this study that the small, ideal and desired family sizes in terms of number of children are clustered together for two and three children while the large and actual family sizes were very close to each other for four and five children,

Summary. Fertility values of the three professional groups of students, in terms of family sizes of ideal, small, desired, large and the actual (siblings) number of children have been studied. Sex and class level were controlled while measuring effects of professional specialization. In addition, responses on "childless" marriage and the relationship between the desired family size and opinions on woman's career were also studied as they were relevant questions to fertility values.

The following is a summary of findings for this section regarding the hypothesis "Students in the teaching profession value larger families more than do students in the health professions."

1. The finding from the overall analysis of the fertility values of three professional groups led to a conclusion that students in health professions were more likely to desire fewer children than students in the teaching profession. More specifically, the finding indicated that the higher proportion of the nursing group desired two children whereas the largest proportion of the education group desired three children. The medical group closely followed the pattern shown by the nursing group.

2. Sex was found to be a highly significant factor as it affected the responses of desired fertility values. The female students were more likely to desire a smaller family size (two-child family) than the male students (three-child family). The professional difference nearly disappeared, but not completely, when sex was controlled. The professional difference in the male groups persisted in "two children" as the desired family size. The male medical students were more likely to desire two children than the male education students. Actual proportions in the female groups suggested that greater proportions of the nursing and female medical groups appeared to desire two children than that of the female education students although the differences were statistically not significant.

3. The class level was not found to be an important variable in effecting the dependent variable.

4. When the position of birth order among siblings was introduced as an independent variable, the "eldest daughter" group was found to desire two children whereas the "eldest son" group desired three children. The sex factor was given as an explanation for this finding. The "only daughter" group appeared to desire a larger family size than the "only son" group.

5. No apparent relationship was found between the desired family size and the size of family in which the student had been raised.

6. Students from the community of more than one million population in high school days were more likely to desire two children than those from communities of less than one million population. No other relationship was found in larger or smaller than two children responses with regard to size of community.

7. Students who approved married women's careers were likely to desire a smaller fertility value than those who disapproved the proposition.

8. The nursing and education groups were found to be more likely to consider the childless marriage as a problem than the medical group.

9. Profiles of fertility values in ideal, small, desired, large, and the actual family sizes revealed two distinct features: (1) Concepts of ideal, small, and desired family size in terms of number of children were clustered closely together while the discrepancy between the concept of large family and the actual family size in terms of number of children was found to be almost negligible. (2) Three different female professional groups appeared to have a general agreement about the concepts of ideal, desired, and small family size in terms of number of children, as the two. The different male professional groups, however, showed no agreement regarding the fertility values mentioned above.

V. Summary and Conclusion

A study of the three professional groups of students in education, nursing, and medicine regarding their attitudes and beliefs on family planning and population issues, and their fertility values was conducted during the spring semester of 1974 academic year. Since the attitudes, beliefs, and values of professional people were believed to influence their services rendered to clients, the following purposes of the study were established and attempts were made to achieve them. The major purposes of this study were (1) to examine the possible relationships of different types of professional training to attitudes and beliefs toward family planning, abortion, population education, and equality of sexes, and (2) to examine the possible relationships to the desired family size to the size of family in which the student had been raised, the concepts of ideal, small, and large family size and the type of professional training.

Two major hypotheses were formulated and tested. The hypotheses were: (1) Students in health professions in general are more likely to show positive attitudes toward family planning, abortion, population education, and equality of sexes than students in the teaching profession. (2) Students in the teaching profession value larger families more than do students in the health professions. An attempt was also made to find answers to specific questions related to the study problems by developing subhypotheses.

Related literature and research were reviewed, especially in the areas of rationale for population control through education, definitions of population education attempted by experts, authorities, and organizations concerned, attitudes toward population education, abortion, and fertility values held by students populations. The following trends were identified through the review of literature:

1. No general agreement on a definition of population education as to objectives, content, and method was found. Nevertheless, a trend toward the inclusion of population education in the formal educational system was apparent.

2. An apparent trend in liberalized attitudes toward induced abortion was observed. Reasons found acceptable for abortions ranged from limiting family size to protecting women's rights.

3. No clear-cut relationship was detected between population related problems and individual adoption of family planning. However, a trend of positive attitudes toward smaller family size which was more apparent in developing countries was noticed.

The methodology adopted for this study was in two parts:

- (1) the preliminary work for the development of a test instrument, and
- (2) the conduct of a field survey.

In the development of an instrument, a preliminary study was conducted on the thirty-two graduate students in the School of Public Health at Seoul National University in Seoul, Korea during the months of March and April in 1974. The initially developed questionnaire included nineteen attitude scale items. The Likert's five-point scale technique was used for the construction of attitude scale items. The nineteen attitude scale items were categorized into the three homogeneous variables, namely, ten scale items on abortion, five on population education, and four on equality of sexes.

The instrument was validated through use of panels of experts (consensual validation) and two statistical procedures. For the statistical validation, quintiserial correlations and the comparisons of mean differences of the upper and lower 27 percent of the criterion groups in the sample population were employed. In other words, total scores and internal consistency were used as criteria for the validation of items. The t test of significance of obtained correlations was applied to the quintiserial correlations to ascertain whether the obtained values were significantly different from zero. The t test was also employed to see whether the observed mean differences between the criterion groups were significantly different.

The final questionnaire consisted of forty-six items which included ten items of general information, seventeen for family planning, and population related issues, and nineteen attitude scale items.

The study population consisted of three professional groups of students who were currently enrolled in Teachers College, Department of Nursing, and College of Medicine at Seoul National University in Seoul. Sixteen hundred ninety-two students or 70 percent of the total population of the student body enrolled in the above mentioned schools participated in this study. Of 1,692 respondents, 50 percent, 17.3 percent, and 32.7 percent were from the education, nursing, and medicine respectively. The total proportion of male students was 72.6 percent against 27.4 percent of female students. The nursing group consisted of female students only. The mean age for the total respondents was 21.6 years. The proportion of the married students was too small to have any significance (2.0 percent for male, 1.3 percent for female).

The data was collected in Seoul, and sent to Chapel Hill and processed at the Computation Center of the University of North Carolina at Chapel Hill. The SPSS was used for the data computations by the computer, an IBM OS/360 Model. The statistics used were (1) absolute and relative frequencies for dependent variables with the chi square tests of significance at an .05 alpha level; (2) the mean scale values, standard deviation for a one-way analysis of variance and the Fisher's ratio and Duncan's

multiple range test were applied for the tests of significance at an .05 level.

Findings

Hypotheses related to the perceptions and attitudes of professional students with different specialization toward family planning, abortion, population education, and equality of sexes were tested with the following results:

Family planning and plans for contraceptive use. The majorities of students in professional schools of education, nursing, and medicine studied definitely favored the family planning and future contraceptive use. Students in the health professions were more likely (at a statistically significant level) to be in favor of family planning and use of contraceptives than the students in the teaching profession. Sex was found to be a significant source of the professional difference in attitudes toward family planning.

Attitudes toward abortion. The evidence from the data analysis supported the proposition that the health professions had more positive attitudes toward abortion in general than did students in the teaching profession. More specifically, the nursing students were most likely to have positive attitudes toward abortion while the medical group in general was more likely than the education students but less likely than the nursing group.

The sex factor had slightly obscured the relationships of the general differences of professions. The strength of professional difference, however, was sufficient to overcome the sex factor. A slight positive relationship was observed between class level in school and mean scale values of student's responses on abortion.

Attitudes toward population education. The analysis of variance of the mean scale values on the "Population Education" variable revealed consistently lower mean scale values of the education group compared to those of the two health groups. A question on belief in population education was asked. The findings led to the conclusion that the majority of respondents, regardless of professional background, believed population education was a better approach to "help solve population problems." The majority was also found in favor of the school systems as the educational channel for sex and family life education. The sex factor was not found to be a significant factor while the class level in school slightly obscured the relationship of professional differences in some individual categories of responses.

Attitudes toward equality of sexes. The analyses of variance of the mean scale values on the "equality of sexes" in terms of opportunities for education, employment, and married women's careers revealed that the nursing group was more likely to be positive toward the equality of sexes than the other two groups. The sex variable was found to be a significant factor in influencing the dependent variable. The female students favored "enlightens marriage" and keep up with society" while the male students favored "economic reason" as important reasons they considered for the careers of married women. The male education students favored "economic reason" while the male medical students favored the "woman's right for a career" as the reason for continuing the married woman's career. No professional difference was observed among female students.

Sex was a determinant factor in the "minimum desirable level of education for girls to be good citizens and efficient individuals in Korea in terms of differences of responses. More specifically, the female students were more likely to be in favor of higher levels of education for girls than the male students. The education students were found to be in favor of a lower level of education for girls. In general, a pattern of bimodal distribution in minimum desirable educational level for girls was observed (divided between high school and university).

For the minimum desirable level of education for boys, the majority favored the university or higher level of education. The male education students favored a lower minimum level of education for boys than the male medical students. No professional difference was observed in female students.

The majorities of both sexes indicated the primary responsibility of controlling pregnancy rested with both the man and the woman. Sex differences were not found to be a significant factor affecting dependent variable. However, the female medical students were found to be in the position of putting the responsibility of controlling pregnancy more to the man than the woman.

Fertility Values

Findings from the data analyses of the fertility values of the three professional groups of students, in terms of family sizes of ideal, desired, small and large were as follows:

(1) A significant professional difference was observed in fertility values of the three professional groups. More specifically, the higher proportion of the nursing group desired two children whereas the higher proportion of the education group desired three children. The medical group closely followed the pattern displayed by the nursing group.

(2) Sex was a highly significant factor as it affected the responses of desired fertility values. More female students desired a smaller family (the two-child family) while more male students definitely desired three children. The professional difference persisted when sex was controlled. The male medical group desired a two-child family more than did the male education group. The female groups of health professions appeared to value the two-child family more than did the female education students in actual proportions although the difference was not statistically significant. The class level did not affect the dependent variable significantly.

(3) The position of birth order among siblings significantly affected the fertility values of the respondents as it combined with the sex factor. More specifically, the "eldest daughter" group desired the two-child family more whereas the "eldest son" group valued the three-child family more.

(4) No apparent relationship was found between the desired fertility value and the actual number of siblings to which the students had been exposed.

(5) Students from the large metropolitan cities of more than one million population were found to desire a small family (the two-child family) more often than those from the communities of less than one million population in their high school days.

(6) Students who approved married women's careers were found to desire smaller families than those who disapproved the proposition.

(7) The childless marriage was perceived as a problem more by the nursing and education groups than by the medical group.

(8) Profiles of definitions of ideal, desired, small and large families as related to the actual family sizes of the respondents revealed two distinct features: (a) Definitions of ideal, desired and small family size in terms of the number of children were similar and the discrepancy between the concept of a large family and the actual family size of respondents was almost negligible. The discrepancy between definitions of ideal, desired and small family, and of large and the actual family sizes was found to be widely apart (two children). (b) A general agreement on the family size of ideal, desired, and small was shown by the three female professional groups whereas no such agreement was found in the male professional groups.

In conclusion, the two major hypotheses including four subhypotheses tested to resolve the problems posed for this study were all accepted on the basis of data presented in Chapter four. Health professionals in general were more likely to display favorable attitudes toward family planning and population related issues than the teaching professionals. Consequently, the health professionals desired fewer children than the teaching professionals. Since the findings of this study indicated rather consistent differences in attitudes across the three professional groups studied, it would appear very important that a further study be designed which would allow an examination of the causal mechanisms which are effecting these observed differences. The existence of a discrepancy between the government's purpose in population control and personal beliefs with regard to the family planning seems to suggest that in formulating government's policy, consideration must be given to the personal beliefs such as the ones identified in this study, if the program is to be successful.

The tendency of stronger support from nursing and female groups, in general, to family planning and of the smaller fertility values by these groups reflected the existing family planning and population programs which have been directed toward the female population as the target. The implication is that the future direction of population programs must be reviewed in terms of target population in order to include the total population, female and male. In other words, the future program must be explicitly toward participation of both sexes.

While the possibility of a relationship between a population related curriculum and students' attitudes and beliefs toward the subject matter was suggested in this study, the relationship between specific areas of curriculum content and their particular impacts on students' attitudes and beliefs were not investigated. Moreover, relationships between these students' attitudes and their future behaviors, which are thought to be related, are also unknown.

On the basis of the assumption that positive attitudes toward population programs and the desire for smaller families would guide the future behavior of the same direction, further studies in two areas are recommended: (1) A longitudinal study to

follow up the study population which was used in this study, and to study their service behaviors and fertility values to compare whether they continue to be consistent with the findings in this study. (2) A retrospective study which would cover population related curriculum content in the three professional schools included in this study to see what particular areas of curriculum have most impact on students. The results from such studies would give some insights to curriculum revision as a whole or to the organization of particular areas of the population related curriculum.

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韓國 保健 및 師範系 大學生들의 人口關係問題에 대한 態度와 專攻分野間的 相關關係 研究

李 環 湜*

서울에 所在하는 3個分野 專門職 大學生들 즉 醫大, 看護大 및 師範大 大學生들의 人口關係態度와 出產價에 대한 調查研究를 1974年 봄學期동안 實施하였다. 人口關係態度에는 家族計劃, 人工流產 및 人口教育을, 出產價에는 理想的 家族數와 大小家族數에 대한 概念 및 그들이 바라고 있는 家族數를 포함하였다.

調查對象은 1974年 봄학기現在 서울大學校 醫科大學, 師範大學 및 看護學科에 登錄된 全學生들이었으며 本調査에 응한 實際 學生數는 1,692名으로써 總調查對象人口의 70%를 차지하였다.

本 調査研究는 使用 가능한 調查道具 開發을 위한 豫備調查와 本調査를 위한 資料蒐集으로 나눈 二段階로 構成되었다.

調查道具 有効化를 위해서는 專門家 意見을 利用한 合意的 타당성(Consensual Validity) 確認獲得과 二個의 統計節次를 使用하였다. 두개의 統計方法은 Quintiserial Correlation과 標本人口의 基準群을 이용한 Internal Consistency Tests를 하였다.

Total Attitude Scale에서 구한 相關係數는 .86이었으며, 各 個別 態度變數에 대하여 구한 相關係數는 流產 .86, 人口教育 .66 그리고 男女性의 同等性 .78이었다.

本 調査를 위한 資料處理는 IBM 360 Model Computer를 使用하였으며 SPSS를 利用했다. 統計方法으로서는 Attitude Scales(Likert's 5 Points Scale)에서 얻은 資料를 Nested Design을 적용하여, mean score를 計算한 One-Way Analysis of Variance를 使用했으며 出產價와 人口教育關係 資料分析은 빈도分布를 計算하여 Chi Square Test를 使用하였다.

本 調査研究의 二大關心事는 家族計劃과 人口關聯 爭點에 대한 것으로서 3個分野 專門職 大學生들의 :

- 1) 家族計劃 및 人口關係 問題에 대한 態度와 觀點의 差異點과
- 2) 理想的 家族數, 大家族 및 小家族數에 대한 概念과 이들이 바라고 있는 家族數의 差異點을 파악하는 것이었다.

위와 같은 具體的 關心領域으로 調查方向을 이끌기 위하여 아래와 같은 二大 假設을 設定하여 檢證했다.

第 1 假設 : 保健系(醫學 및 看護學) 大學生들은 家族計劃, 流產, 人口教育 및 男女의 同等性에 대하여 師範系大學生들 보다, 더 肯定的態度를 보일 것이다.

第 2 假設 : 師範系 大學生들은 保健系 大學生들에 비해서 더 큰 家族規模를 바랄 것이다.

資料를 統計處理해서 얻은 結果를 근거로 위의 二大假設은 모두 受容되었으며 그 主要結果를 要約하면 아래와 같다.

- 1) 3個分野 專門職大學生들 대부분이 家族計劃과 避妊法使用 및 人口교육과 男女의 教育機會

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均等に 대하여 好意的이었다.

2) 流産變數에 있어서의 專門職差異는 위와 같은 경향을 보였으나 看護學生이 가장 肯定的이었으며, 다음으로 醫學生 그리고 師範大學生들이 가장 낮은 好意를 보였다.

3) 教育 및 就業機會均等に 있어서의 男女同等성과 既婚女性の 職業機會에 대해서는 看護學生群이 가장 好意的이었고 다음이 醫學生群으로 나타났다.

4) 從屬變數인 家族計劃과 男女의 同等성에 영향을 준 것은 性要因이 有意하게 作用하였으나 專門職 差異가 性要因을 능가할 수 있게 계속 강하게 作用하였다.

5) 保健系 學生들은 두명의 子女數를 원하는 경향을 보인 반면, 師範系 學生들은 3명의 子女數를 바라는 경향을 보여, 出產價에 있어 專門職要因이 크게 作用한 것으로 推定되었다.

6) 理想的 家族數, 바라고 있는 家族數 및 小家族數에 대한 概念은 숫자상 거의 一致點에 도달했고, 大家族數와 現在 兄弟姊妹數가 또한 一致點에 달하고 있는 것이 判明되었다.

大家族數와 小家族數에 대한 差異는 두명이었으며, 學生들이 바라고 있는 家族數와 現 兄弟姊妹數와의 差異 역시 둘로 判明되었다.

保健系大學 教育課程에 家族計劃 및 人口關係 內容이 插入, 첨가된 사실을 미루어 보아(이러한 內容이 師範系 教育課程에는 포함되지 않고 있음) 師範系 大學生들에 비해 保健系 大學生들의 人口關係 爭點에 대한 보다 肯定的的態度는 教科課程상의 영향이 아닌가 의심이 간다. 因果關係를 파악하기 위해 實驗研究가 추천되고 人口教育에 관한 基礎資料로써 本 調查研究가 人口教育을 위하여 寄與할 것을 希冀한다.