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The Influence of Population Knowledge and Concern on Acceptable Family Sizes and Expected Family Size

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This is to certify that the thesis prepared by Nancy Ross Hugo

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The Influence of Population Knowledge and Concern on Acceptable Family Sizes and Expected Family Size

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University

by

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Abstract

This study focused on the influence of population knowledge and population concern on acceptable family sizes and expected family size. Analysis of the responses of 212 students in Introductory Sociology classes to a questionnaire survey revealed that the greater the student's population knowledge, the greater the degree of concern over population growth. Furthermore, the study revealed a stronger relationship between general knowledge of population processes and population concern than between specific knowledge of population sizes and growth rates and population concern.

Analysis of the relationship between population concern and acceptable family sizes revealed that the greater the degree of concern over population growth, the greater the disapproval of large families and the approval of small families and childlessness. Programs designed to create concern over population problems through information-giving may, then, have implications for the development of new family size norms.

A negative relationship was found between population concern and expected family size, indicating that the greater the degree of concern over population growth, the smaller the expected family size. In addition, the relationship between population concern and expected family size was found to be stronger among those students who located responsibility for population growth within their own group than among those students who located responsibility for population growth within some other racial, income, or religious group.

The Research Problem

Recent concern over population growth, resource scarcity, and environmental deterioration has led to the development of many programs aimed at reducing fertility levels. Arguing that family size preferences are currently too high to achieve population stability even if unwanted births were eliminated, many population organizations, most notably Zero Population Growth, have sought to promote attitudes favoring small family sizes and childlessness by increasing public concern over population problems.

One of the most recent strategies developed by population activists to motivate couples to prefer small family sizes has involved emphasis on the new field of population education. Viederman (1972) defines population education as "the process by which the student investigates and explores the nature and meaning of population processes, population characteristics, and the causes of population change in addition to the consequences of these processes, characteristics, and changes for himself, his family, his society and the world." According to Demeny (1974), these programs have sought not only to provide information regarding the causes and consequences of population change, but also to modify desired family size by persuasion and by inculcating behavioral norms in harmony with the collective interest.

Lack of confidence in these programs designed to motivate couples to limit family size "for the good of society" is voiced by Davis (1963).

As Davis argues, when fertility behavior is intended, it is intended for individual purposes which do not envision collective consequences. Russo and Brackbill (1973) concur by noting that as currently conceived by some population educators, population education rests on two psychologically untenable assumptions: "The first is that knowledge transforms itself into action. The second is that knowledge will cause personal goals to change so that they accord with the needs and goals of society."

Skepticism about the assumption that population education can reduce fertility through an appeal to altruism would seem theoretically justified since the immediate rewards of having a child would seem to outweigh the delayed societal advantages of reduced fertility. It is also true, however, that the majority of studies investigating recent trends in population attitudes in the United States have found an inverse relationship between concern about overpopulation and ideal or expected family size (Rindfuss, 1972; Kruegel, 1974; Weiss, 1971; Scarlett, 1972; Corman and Schaefer, 1973). Hobart (1973) argues, in fact, that of the developments of the past decade influencing people's attitudes toward parenthood, the most general is a massive increase in awareness of the magnitude and immensity of the problem of world overpopulation.

Yet to be systematically investigated is the possibility that population education may help to reduce family size preferences, not by convincing individuals to limit fertility out of collective concern but rather that by changing the climate of opinion regarding population issues, population education may influence attitudes regarding the limits of acceptable family sizes and that these attitudes in turn may lead to the generation of new low-fertility norms. The present study is designed, then, to explore the possibility that population education, by increasing

awareness of population problems, their causes and consequences, may facilitate the adoption of attitudes favoring small family sizes and childlessness. Examining the relationships among population knowledge, population concern, acceptable family sizes and expected family sizes, this study should be a valuable supplement to studies that have examined the effect of population knowledge and concern on fertility expectations without examining the influence of population concern on attitudes governing the limits of acceptable family sizes. Furthermore, this study will attempt to overcome some of the methodological difficulties involved in assessing population knowledge and concern, acceptable family sizes, and family size expectations.

Literature Review

Population Knowledge and Concern

Studies examining population attitudes in the United States indicate widespread awareness of population problems. For example, a survey conducted by the Commission on Population Growth and the American Future (1971) indicated that for the nation as a whole, over 90% of those interviewed felt that population growth constituted a problem of one degree of seriousness or another, and 84% saw the distribution of the nation's population as a matter of at least some concern. Similar results are reported by Rindfuss (1972) who notes that data on attitudes toward the seriousness of population growth derived from the 1965 and 1970 National Fertility Studies indicate that the percent perceiving United States population to be a serious problem has increased from 57 to 69% in the five year period, and the percent reporting world population growth as serious increased from 80 to 85%.

The few studies that have examined population attitudes, have shown, however, that while population growth is considered a substantial problem, population knowledge is not great. The National Public Opinion Survey of the Commission on Population Growth and the American Future (1971) found that while only 16% and 37% knew the correct range of world and United States population respectively, between 86% and 97% of all major groups thought population growth was a problem (Wolman, 1973). Rindfuss (1972) has found, too, that although concern for population growth has increased

since 1965, women are still uninformed regarding the size and relative growth rate of the United States population. Similar findings of low knowledge and high concern have been reported by Dykstra (1965), Poffenberger et al. (1970), and Wanderer et al. (1970).

This lack of association between knowledge and concern may be due to the fact that items of knowledge may not be relevant to problem perception especially when correct answers require extremely specific demographic knowledge (Murphy, 1975). In addition, Poffenberger et al. (1970) point out that further analysis of an incorrect estimation of the United States population is revealing since they found that their subjects generally overestimated the United States population and that 90% of the sample felt that the United States should either not increase or should decline in number. Especially when examining the effect of population attitudes on acceptable family sizes, it would seem then that it is problem perception and concern rather than accurate knowledge of specific demographic data that will most influence fertility preferences.

One aspect of population knowledge that is related to problem perception may, however, be particularly salient in the development of antinatal norms. Lack of knowledge as to the causes of the problem may well affect the link between problem perception and family size preferences. For example, Darney (1970) found that 78% of his sample agreed that overpopulation was a problem in the United States, but over 30% reported that the reason overpopulation was a serious problem was that "poor people have more children than they can support." As long as middle class individuals perceive the problems of overpopulation as caused by the fertility of the poor, there may be little hope in assuming that they will modify their own family size preferences. It will be important,

therefore, to include in the study a measure to indicate whether the respondent locates responsibility for population problems within his own or some other income, racial, or religious group.

Population Concern and Fertility Expectations

Studies examining the relationship between population concern and fertility expectations have yielded conflicting results. Barnett (1970) has found that persons possessing a high degree of concern with population growth are not more likely to believe the married couple must restrict its fertility than persons possessing little concern, although he argues that such a correlation will develop by the mid 1970's. According to Barnett, growing evidence of an extremely serious and immediate threat to life and health stemming from the continued pollution of the environment with people and chemicals is likely to play a major role in bringing about the correlation since "life and health seem to be values which are held far more strongly than the value of complete freedom to reproduce" (Barnett, 1970:59).

Van Tienhoven, Eisner, and Rosenblatt (1971) have also found that even among students and faculty members at Cornell expected to be most concerned about the population crisis (graduate students and young faculty in biology), at least 50% desired 3 or more children. Although van Tienhoven's study would appear to suggest that expected fertility is not influenced by awareness of population problems, few conclusions may be drawn from the study which employed no actual measure of population concern but instead assumed knowledge of population problems due to educational status.

A lack of relationship between population concern and lowered fertility goals is, however, also reported by Poffenberger et al. (1970).

90% of subjects questioned by Poffenberger et al. felt that the United States population should either not increase or decline in number, but only 64% agreed with the statement "I feel strongly enough about preventing overpopulation that I'd be willing to limit my family to 2 children," and the mean desired family size was 2.9. This apparent inconsistency in attitude is also reported by Wanderer et al. (1970) who found that although 91.3% of the sample agreed that a reduction of population growth was desirable, the mean ideal family size was 3.7 for Catholic school students and 2.4 for non-Catholic students. Poffenberger's study also indicates that the form of questions concerning fertility behavior may be an important factor in determining the direction of response. For example, Poffenberger found that 43% of his subjects agreed "a couple should have as many children as they want without worrying about overpopulation" while 70% agreed that "to prevent overpopulation each couple has a responsibility to limit the number of children they have."

The great majority of studies have, however, found an inverse relationship between concern about overpopulation and ideal or expected family size (Rindfuss, 1972; Kruegel, 1974; Weiss, 1971; Scarlett, 1972; Corman and Schaefer, 1973). Moreover, Rindfuss (1972) found that the difference in mean desired family size between those who are concerned and those who are not concerned increased from half a child in 1965 to a full child in 1970. In addition, Gustavus and Henley (1971) provide evidence of population concern motivating actual fertility reduction. Examining the correlates of voluntary childlessness, Gustavus and Henley found that of couples who within the last two years had applied to the Association for Voluntary Sterilization for help in obtaining voluntary

sterilizations, the most common reason given on applications for wanting to be sterilized was concern for world or national population problems.

Gustavus and Henley point out that their study raises the theoretical question of whether or not population concern is a true reason that motivates couples or whether it is a socially acceptable reason they have seized upon to justify a decision made for other reasons. The fact, however, that concern for overpopulation has become a socially acceptable reason for limiting fertility may, in itself, indicate the influence of population awareness on fertility norms.

Further, as Russo and Brackbill (1973) argue, as population education becomes more widespread, the relationship between population concern and individual fertility may increase. Dykstra (1965) notes that in the early 60's high school students reported that overpopulation was usually referred to in school only briefly if at all. With recent efforts to organize the field of population education and to implement population education programs (Burleson, McArthur, and Taylor, 1969; Simmons, 1970; Viederman, 1970a, 1970b) that situation may have changed radically.

Results of recent studies do suggest a trend toward lowered desired number of children. Among his sample of unmarried college students, Buckhout (1972) reports that the ideal number of children desired was 2.6, a figure lower than that reported among college students by Eisner (1970) and which should be compared with 3.0 -- 3.3 which has consistently shown up in studies of the family size preferences of married women since 1936. Buckhout (1972) reports, in fact, that his more recent follow-up studies have shown even lower figures of 2.45 and 2.31 for the ideal number of children desired. In addition, Buckhout reports a shift in the percent desiring 3 or more children -- down to 41% from 65% reported by van Tienhoven

et al. (1970). Buckhout concludes that his lower figures may signal a shift toward a 2-child norm.

Population Concern and Fertility Norms

Changes in family size norms may affect not only the range of "permissable" or desired number of children but also attitudes toward childlessness, the only child, and preferences for at least one child of each sex. The importance of norms in shaping fertility preferences is emphasized by Rainwater (1965). From his study of married couples in 1965, Rainwater concludes that his subjects viewed people with large families as somehow "good" and those with small families as less laudable and often as selfish. Rainwater interprets some of the answers given by his middle class respondents as meaning that some people have large families not so much because they really want them but because they feel social pressure to do so.

In interpreting the results of his study for the Commission on Population Growth and the American Future (1971), Rindfuss (who found an inverse relationship between population concern and desired family size) suggests the possible influence of population concern on the development of a 2-child norm:

> Prior to this recent concern for population growth and the concomitant implication that couples should have only two children, there were norms against childless and one child families. But except for the Catholic population, there were no strong universalistic reasons governing decisions about having a third and fourth child. Thus, by providing a widely accepted reason for having only two children, the media may have strengthened the resolve of those who had already decided for personal reasons to have only two children and influenced those who were indecisive regarding third and higher order children. (Rindfuss, 1971:461).

Blake (1974), too, sees a share of the recent decline in birth expectations of young American wives as due to the historically unique

stimulus of intense public attention to population growth and family size. She argues, however, that, inundated by a sudden wave of anti-natalist propaganda, respondents may be giving stereotyped responses, or may feel embarrassed to say that they want or expect more than two children and that these responses do not indicate a major change in long-term motives. As evidence she cites the following:

1) a sudden massing of responses in the two child category. (Whereas in 1967, 37 percent of young wives expected a total of two children, by 1972, 57% looked forward to a family this small -- a 54% increase in the proportion expecting two children over approximately a five year period.)

2) the remarkable tolerance for the large family. (The average family size considered "too large" among all the samples, with the exception of white males currently in college, was well over five children.)

3) an aversion to childlessness and the one child family. (By 1972, 80 percent of white Americans allege that being an only child is a disadvantage as compared with 76 percent in 1950.)

4) incongruency between respondents' evaluations concerning the family cycle and childspacing and their personal acceptance of the small family.

Given this evidence, Blake concludes that it seems naive to assume that important sources of informal moral pressure prevail among us to have only two children. Before accepting her conclusions, however, it is important to examine the possible inadequacy of items employed in her questionnaire to determine normative commitment to the two-child family. Respondents were asked the following questions:

1. According to your personal tastes and preferences, what size

family do you think is too large: a husband, wife, and how many children?

2. According to your personal tastes and preferences, what size family do you think is too small?

Although ostensibly adequate to tap range of permissable numbers of children, careful reading indicates that the first question forces a response indicating that some families are too large while the second question allows for no response that could indicate acceptance of a childless marriage. Recognizing the possible ambiguity of the question, Blake also included the following two questions:

1. Some people say that married life is happier if you do not have children to care for. Others say that marriage is happier when there are children. Speaking for yourself, what is your opinion?
2. Do you think being an only child is an advantage or a disadvantage?

Finding that the great majority of respondents felt being an only child was a disadvantage and that marriages are happier with children, Blake concludes that her results indicate rigidity of attitudes toward childlessness and the only child. It seems also possible, however, that these two questions are tapping attitudes independent of approval or disapproval of childlessness and one child families. For example, some individuals may see sibling interaction as an advantage without necessarily disapproving of one child families.

A more appropriate measure of attitudes toward childlessness would seem to be that of Pohlman (1974). In Pohlman's interviews, respondents were asked, "What is your opinion of married people who choose not to have children?" In contradiction to Blake's findings, Pohlman found that

two 1970 samples (contrasted with parallel 1965 samples) were significantly more likely to mention that childless couples were helping the population problem, significantly less likely to express pity for them, and showed significantly more positive distributions on a "positive-negative-neutral" rating.

In addition, it should be noted that among college youth, Blake (1974), too, found an increase in the proportions desiring to remain childless or have only one child. In 1961, only three percent of college men and women wanted either no children or only one child, but by 1971, childless-one child responses had risen to ten percent among men and 13 percent among women. The expected greater exposure of college students to population information may support the influence of population knowledge and concern on lowered fertility expectations, but no clear conclusions can be drawn without direct assessment of population attitudes.

In a study of social pressures on family size intentions, Janet Griffith (1973) found disapproval of family sizes outside the boundaries of the two-to-four or five-child range and that this social response was reflected in direct and indirect pressures on couples to bring their family size intentions and performance into conformity with social expectations about "acceptable" family sizes. To explore the kinds of direct and indirect social pressures affecting the family size intentions of couples, respondents were asked a series of questions about how they thought others would respond to them and how they would feel if they were childless, had one child, or were expecting a fifth child. Overall, the data for both men and women indicated expectations of substantial direct and indirect pressures both to have a first and second child and to limit family size after having a fifth. Griffith did find, however, that from

1967 to 1973 the proportion of wives expecting three or more children decreased from 55% in 1967 to 30% in 1973, the proportion of young wives expecting to remain childless increased from 1.7 to 4.0% and the proportion expecting to have only one child increased from 5 to 9%.

While there appears then to be consensus as to the strong influence of social pressure and family size norms on fertility preferences, there is little agreement as to present family size norms and to the influence of population concern on those norms. If, in fact, family size norms are changing as a result of attitudes toward population growth, approval of small families and childlessness and disapproval of large families should be greatest among those individuals most concerned with population problems. The present study is designed to examine this relationship and the relationships among population knowledge, population concern, and family size expectations.

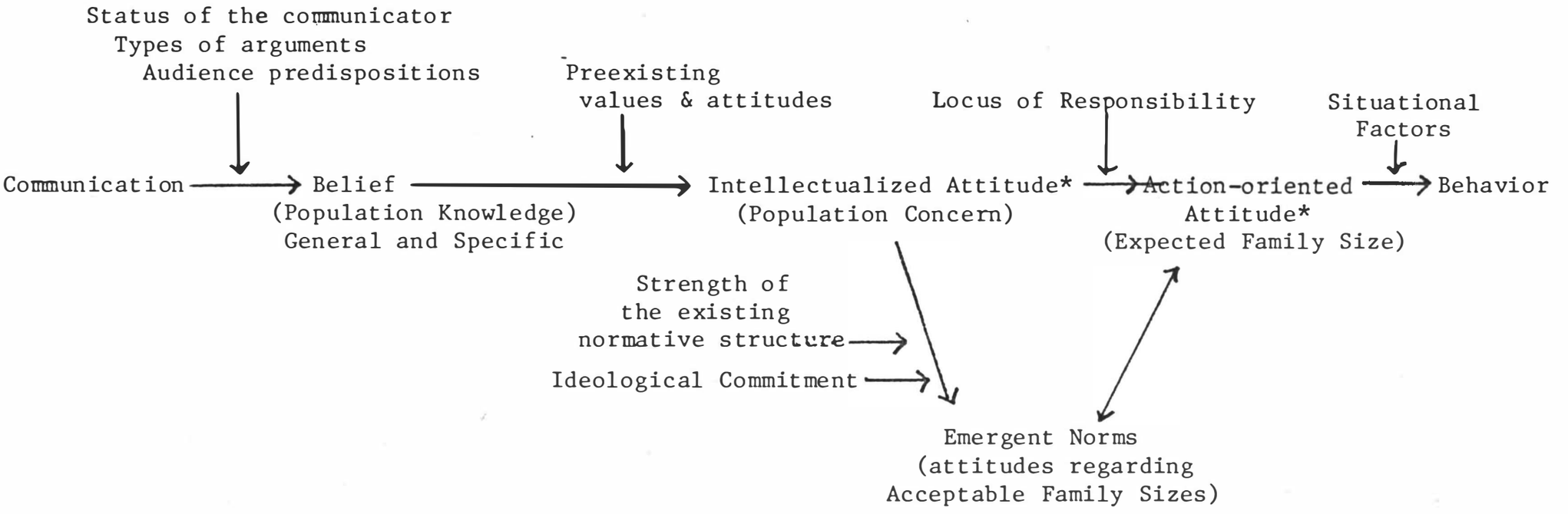
Theoretical Perspective and Hypotheses

In order to understand the way in which population knowledge and concern may influence attitudes governing acceptable family sizes and family size expectations, it is important to understand the many variables that may operate between the communication of population information and actual fertility behavior. The model provided is designed to figuratively portray these relationships (Figure 1).

As the model indicates, the link between communication and the acquisition of population knowledge will be mediated by a number of factors. As Hovland et al. (1953) point out, the effectiveness of communication is influenced by the perceived trustworthiness, intentions, and affiliations of the source of the communication. In addition, Hovland argues that the types of argument employed and their manner of organization will affect the success of the communication as will audience predispositions including group conformity motives and individual personality factors.

The model illustrates further the link between the individual's received knowledge of population issues and the attitude of population concern. Krech et al. (1962) argue that attitudes are shaped to a large extent by the information to which the individual is exposed, and Smith (1969) also stresses the importance of information in feeding the process of object appraisal. Studies examining attempts to change attitudes through communication and information-giving indicate, however, that the

Figure 1: Descriptive Model



*The distinction made here between intellectualized attitudes and action-oriented attitudes is that employed by Katz and Stotland (1959). According to Katz and Stotland, intellectualized attitudes have a heavy cognitive component in addition to a feeling component but lack action orientation. Action-oriented attitudes, on the other hand, represent action tendencies toward evaluated objects with a minimum of cognitive content.

relationship between knowledge and attitudes is a complex one.*

Murphy, Murphy, and Newcomb (1937) have noted that the one frequent finding in studies that have reported shifts in attitudes following communication was that the most prominent changes were made by individuals initially "neutral" or "undecided" on the issue. The implication of this finding, according to Sherif and Sherif (1956), is that communication may be most effective when the individual has no clear-cut stand on the issue initially. Attempts to create concern over population issues through information giving may, then, be particularly successful since the process involves not the changing of pre-existing attitudes but the creation of new attitudes in an area that has only recently received widespread attention.

Krech et al. (1962) also point out, however, that information is a determinant of attitudes only in the context of other attitudes and that new information is frequently used to form attitudes which are consonant with pre-existing related attitudes. From the perspective of consistency theory, we would expect then that the individual's knowledge of population problems would most often lead to a negative evaluation of population growth if this position is consistent with the other important attitudes and values of the individual. Particularly important in this regard may be the tendency of Americans to equate growth with progress and to value "growth as good." To the extent that this position carries over to the

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*Most studies, including those by Williams (1947), Schlorff (1930), Cherrington and Miller (1933), report that attitudes can be changed in the desired direction through communication and information-giving techniques. Other studies, including those of Young (1927) and Droba (1932), indicate that presenting communication designed to influence attitudes may not guarantee attitude change. Some studies, in fact, have found that communication may produce attitude shifts in the opposite of the intended direction (Manske, 1935; Wilke, 1934).

the process of establishing a shared commitment is begun. Therefore, changing individual attitudes toward childlessness, the only child, and large families may be considered the first step in establishing normative commitment to small family sizes. From the perspective of Scott (1971) who views norms as patterns of sanctions and defines sanctions as social reinforcers, the importance of changing attitudes in the development of new norms becomes even more apparent since attitudes regarding the limits of acceptable family sizes will govern whether reward or punishment is conferred for bearing a certain number of children.

The susceptibility of family size attitudes to change will depend, however, on the degree to which the change represents a break with already established group norms. The Sherifs (1956) suggest that many attempts to change attitudes are ineffective because the change often implies to the individual a break from the security of group ties. They argue, however, that if social interaction focused on an issue of considerable significance takes place among members of a group, the individual participant can move with the developing trend toward the crystallization of a group decision or norm.

The findings of the authors of the Growth of American Families Study (1959) suggest that family size norms in the U.S. are relatively fluid and susceptible to change. They note that ideal family sizes in the U.S. have varied from two children in 1941 to four children in 1955, and they point out:

> The rapidity with which new standards of family size have spread throughout the whole society since World War II indicates how quickly a population may now adjust its values about such vital matters as reproduction. Apparently our population is now so closely linked together in a single system of communication and interdependence that...new values can be developed, diffused, and put into action on a massive

scale very quickly (GAF, 1959).

Freedman (1962) also sees the period following the demographic transition as one in which family size norms are in flux. He notes that the usual explanation of the time lag between the decline in mortality and the decline in fertility following economic development is that while low mortality is always positively valued, there are no low fertility norms to carry over from the preindustrial period. According to Freedman, considerable experimentation may be required before a stable norm is developed.

Ogburn (1964) suggests further that ideological movements may wield considerable influence during this transitional period. According to Ogburn, ideological movements are especially significant when the "cake of custom" begins to crack. He argues: "When social change breaks hard custom, the forces that were held become fluid, perhaps later to form a new custom. It is then that ideologies exercise exceptional influence" (p. 194). Ogburn cites the imbalance of births and deaths as an example of cultural lag and argues further that ideologies often operate to speed the crumbling of resistances in the form of lags. It may be argued, then, that the weaker the normative structure, the greater will be the ease with which attitudes regarding acceptable family sizes may be changed to assume consonance with attitudes of population concern and the greater will be the influence of population education programs on the crystallization of new norms.

To summarize, the degree to which population concern contributes to the emergence of new norms by changing individual family size attitudes will depend upon the strength of the existing normative structure. The following three possible outcomes should help to clarify this relationship:

individual's attitudes regarding population issues, pressures toward consistency may make it difficult for the individual to develop a negative evaluation of population growth.

The triangular relationship among the attitudes of population concern, acceptable family sizes, and expected family size is figuratively portrayed in Figure 1. As Krech et al. (1962) point out, an individual's attitudes may differ in the degree to which they are isolated from one another or are interconnected with one another, and attitude clusters may vary with respect to degree of consonance. As noted earlier, however, the individual does attempt to maintain consistency among the attitudes that make up these attitude clusters. The consistency principle would lead us to expect, then, that attitudes of high population concern should be associated with attitudes favoring small family sizes and with small family size expectations. As the model illustrates, however, the link between population concern and expected family sizes will be mediated by the individual's assessment of the location of responsibility for population growth. That is, the attitude of population concern will be inconsistent with large family size expectations only if the individual locates responsibility for population growth within his own social group and, as a result, sees his own fertility behavior as contributing to the perceived problem.

The connection between population concern and attitudes regarding acceptable family sizes also requires further explanation. As the label in the model indicates, attitudes regarding acceptable family sizes may be viewed as contributing to emergent social norms. As Sherif and Sherif (1956) argue, norms are developed through the process of social interaction. As one individual communicates his behavioral expectations to another,

1. When individual attitudes mirror existing, stable group and community norms, they will only add to the total cultural pool reinforcing existing normative guidelines.

2. When individual attitudes run counter to existing group and community norms, the individual will be less likely to retain his initial attitudes and will be apt to alter his views in the direction of prevailing norms.

3. When group and community norms are in a state of flux, individual attitudes are more likely to have an impact on group and community standards and to contribute to an emergent normative framework.

All three of the above outcomes will be mediated by the extent to which the individual is ideologically committed to his intellectual or cognitive position. If it is solely an intellectual concern, he is less likely to work to have his view become the prevailing one, but when his intellectual concern becomes ideologically laden, he is apt to work vigorously to transmit it to others. At this stage, the individual feels responsibility and concern not only for his own individual actions but also for the actions of others.

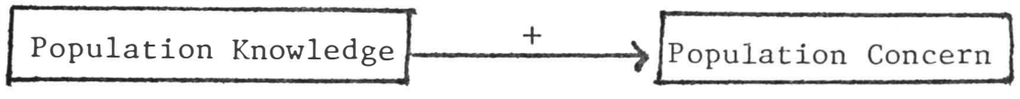
Finally, the descriptive model indicates that the relationship between attitudes regarding expected family size and actual fertility behavior will be mediated by a number of situational factors including immediate interpersonal demands as well as normative expectations conveyed by relevant reference groups that govern behavior in the situation (Schofield, 1972). In addition, the degree of congruence between family size expectations and fertility behavior will obviously be influenced by the efficiency of family planning practices.

Analysis of all of the relationships illustrated in the model is far

beyond the scope of this paper. While it is recognized that other variables may intervene between the communication of population knowledge and actual fertility reduction, analysis of the following hypothesis should shed light on the nature and strength of the influence of population knowledge and concern on family size attitudes.

In order to assess the relationship between population knowledge and population concern, the following hypothesis was analyzed:

Hypothesis 1: Overall population knowledge should be positively correlated with population concern.

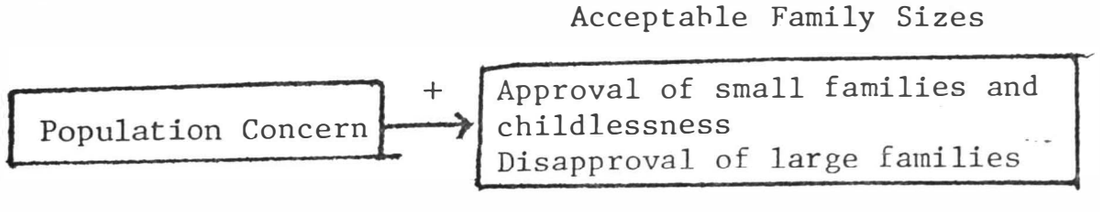


To test Murphy's (1975) assumption that the lack of association previously found between population knowledge and concern may be due to the fact that items of knowledge may not be relevant to problem perception especially when correct answers require extremely specific demographic knowledge, the following hypothesis was also analyzed:

Hypothesis 2: There should be a stronger relationship between general knowledge of population processes and population concern than between specific knowledge of population sizes and growth rates and population concern.

In order to assess the influence of population concern on acceptable family sizes and expected family size, the following hypotheses were tested:

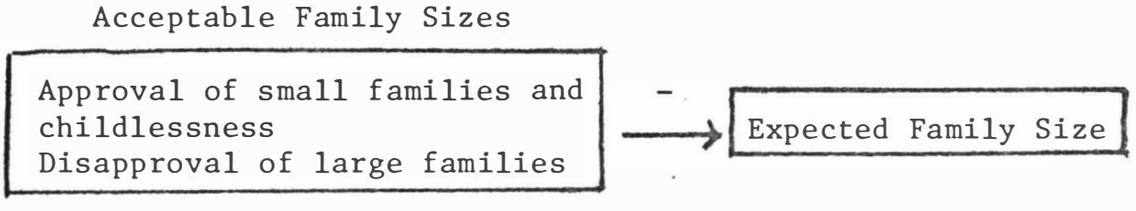
Hypothesis 3: As population concern increases, approval of small families and childlessness is expected to increase. (Disapproval of large families is also expected to increase.)



Hypothesis 4: Population concern should vary inversely with expected family size.

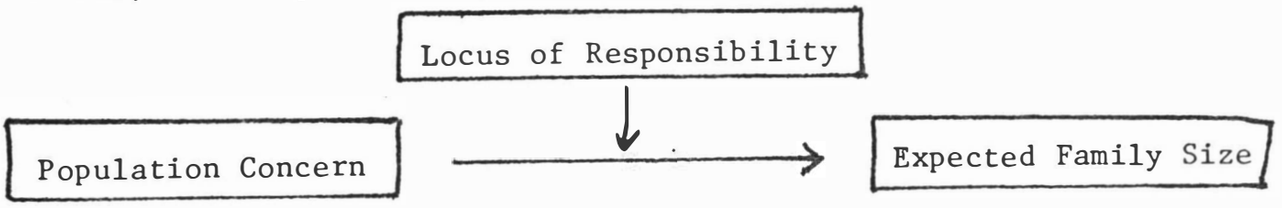
In order to assess the degree of association between what respondents consider acceptable family sizes for others and their own family size expectations, the following hypothesis was also analyzed:

Hypothesis 5: Approval of small family size and disapproval of large families should vary inversely with expected family size.



As noted earlier, lack of knowledge as to the causes of population problems may affect the link between concern over population problems and family size expectations. If middle class individuals, for example, perceive the problems of overpopulation as caused by the fertility of the poor, there may be no reason to assume that they will modify their own family size expectations. To investigate the influence of locus of responsibility on the relationship between population concern and expected family size, the following hypothesis was analyzed:

Hypothesis 6: The negative relationship between population concern and expected family size should be stronger among respondents who locate responsibility for population growth within their own groups than among respondents who locate responsibility for population growth among income, racial, or religious groups other than their own.



Research Design and Procedure

The Sample

In order to assess the influence of population knowledge and concern on family size attitudes and fertility expectations, it was important that the sample for the study include subjects who would be expected to demonstrate some knowledge of population issues. College students were selected as appropriate subjects since they would be expected to have been exposed to population information at some time during their high school or college careers when not only the media but many educational programs began to focus on population issues. In addition, since the study is concerned with the influence of population concern on fertility intentions, a student sample, which would consist of a majority of subjects who had not begun their reproductive careers, was considered appropriate,

Random sampling of the college population was precluded by the limited resources available for the study. As a result, the sample population consisted of 302 students enrolled in three Introductory Sociology classes at Virginia Commonwealth University in the spring semester of 1976.

Independent and Dependent Variables

1. Population knowledge

This variable is defined as the respondent's knowledge of population trends and facts and was measured by the respondent's correct responses

to questions on a survey consisting of 13 items. (See Appendix A.) The items included in the survey (with the exception of item 2) were drawn from Murphy's Survey of Population Knowledge (1975) which consists of items assessing knowledge of population facts and processes considered important in several books or units designed for population education (Brown, 1974; Horsley et al., 1973; Reid and Lyon, 1972; Huether, 1973). Item 2 which asked whether world population is growing, is stabilized, or is declining was substituted for Murphy's question which asks for the present growth rate of world population, since, as noted earlier, items of knowledge should be broad enough so that correct answers are not limited to those specifically trained in demography.

As revised, it should be noted that the survey was designed to include two aspects of population knowledge -- specific knowledge of population sizes and growth rates and general knowledge of population processes. Items designed to assess general knowledge included items 2, 7, 10, 11, 12 and 13; items designed to assess specific knowledge included items 1, 3, 4, 5, 6, 8 and 9.

2. Population concern

Recent research has indicated the inadequacy of a simple, isolated measurement of public concern over population problems. For example, Simon (1971) found that 66% of her respondents thought population in the United States was growing too fast and 51% thought population in the United States and the rest of the world was growing too fast, and yet, when her subjects were asked in the absence of specific cues about world problems, only 13% mentioned population as having the first order of importance.

It would seem, then, that few respondents to questions on population

concern will want to appear unconcerned when cued as to what the experimenter is looking for. Measurement based on answers to the single question "Are you concerned about the population problem?" must be suspect. Also inadequate with respect to the present study is the assessment of extent of concern over population in comparison with other perceived social problems (a technique employed by Hetrick, et al., 1972). Population growth need not be considered one's most important social concern in order to effectively influence opinion on the subject.

The present study, therefore, defines population concern as the respondent's perception of the seriousness of the population problem, and level of concern was determined by the respondent's combined responses to questions taken from the 1971 National Public Opinion Survey commissioned by the Commission on Population and the American Future. In order to allow for wide variation in responses, students were asked to indicate their assessment of the degree of seriousness of the problems of world and United States population growth on a seven point continuum with the extremes indicating that population growth is an extremely serious problem or no problem at all. (See Appendix B.) This is in contrast to the three response categories employed by Rindfuss (1972).

Included in the survey of concern were three items (items 1, 3, and 5) to ostensibly tap concern in other areas. These items are included, however, only to mask the researcher's motives and were not included in the respondent's score on population concern.

3. Acceptable family sizes

As noted by Freedman (1962), family size norms specify a range of permissable or desirable numbers of children. Variation in the limits of acceptable family sizes among respondents expressing varying degrees

of concern over population growth may then indicate the relationship between concern and normative commitment to various family sizes.

This variable is, then, defined as the respondent's approval or disapproval of large and small families and was measured by respondent's answers to six questions similar in format to those employed in interviews by Pohlman (1974). Responses to the six questions were combined into a single score indicating the degree of approval of small families and disapproval of large families. For the purposes of this study, families with three or more children were considered large families since the demographic implications of family size for population growth begin at the three child level. The direction of scored responses was reversed at the level of three or more children. It is believed that the method of determining range of acceptable number of children in this study is preferable to that employed by Blake (1974) as it more readily allows for responses indicating approval of childlessness and one child families. (See Appendix C.)

Also included in the survey of acceptable family sizes were three questions (items 1, 4, and 6) included only to reduce patterned responding and unrelated to the analysis.

4. Expected family size

This variable consists of the number representing the number of children the respondent expects to have when his family is completed. In order not to design out the possibility of a response indicating that no children were desired, subjects were asked, "Do you intend to have any children?" before they were asked to indicate the number of children they expected to have altogether. Respondents also indicated whether or not they presently had children, how many children they had, and how

many additional children they expected to have. For respondents with children, answers to the last two questions ("How many children do you have?" and "How many more children do you expect to have?") were combined to indicate expected family size. (See Appendix D.)

Control Variables

1. Locus of responsibility

This variable consists of three dimensions designed to indicate whether the respondent locates responsibility for population problems within his own or some other income, racial, or religious group. (See Appendix E.) Answers indicating that the respondent felt that all racial, income, or religious groups share equally in the amount they contribute to population growth were scored as if the respondent located responsibility within his own group. (See Appendix E.)

2. Religious affiliation and religiosity

Religious affiliation and religiosity have been included as control categories due to their previously documented influence on population attitudes and fertility preferences. Differences between Catholic and non-Catholic views, for example, have been found to be among the most important, consistent, and well-documented differences among Americans in terms of numbers of children desired (Peck and Senderowitz, 1974). In addition, Westoff and Potvin (1967) have found a positive association, especially among Catholics, between religiousness and the number of children desired by college women.

Students were asked first if they belonged to a church or religious organization and then to indicate the religious denomination or organization to which they belonged. (See Appendix F.) Responses were grouped into the categories of Protestant, Catholic, and no religious preference.

Students were also asked to express their degree of religious commitment by indicating whether they were deeply religious, moderately religious, not very religious, or not religious at all. (See Appendix F.)

3. Race

Race was included as a control category in the analysis in order to determine the possible influence of minority status on the hypothesized relationships. Contrary to many popular misconceptions, race has been previously found to have little effect on family size preferences (Jaffe, 1964). Population attitudes have, however, been found to vary widely among races. Buckhout (1972), for example, found that when compared with white students, blacks and chicanos saw the population explosion as less serious and rated voluntary limitation of family size to two children as less favorable. Buckhout concludes that many black students impute genocidal motives to population control advocates and respond accordingly.

Each respondent was asked to indicate his race as black, white, or other. (See Appendix F.) Students indicating the category "other" were grouped with black students in the analysis.

4. Socioeconomic status and age

Analysis by age was included in the study to determine the possible differential effects of primacy of exposure to population information. It would be expected, for example, that population information and concern would exercise less influence over the family size attitudes of older students who were probably exposed to population issues later in life (often after they had begun childbearing) than they would exercise over the attitudes of younger students who were exposed to population

information before beginning their reproductive careers. Age was measured by the student's response to a question asking him to indicate his age at his last birthday. (See Appendix F.)

Socioeconomic status, which has long been recognized as an important variable in fertility analysis (Whelpton and Kiser, 1947-1958; Westoff, et al., 1961; Kiser et al., 1968; Freedman et al., 1959), was also included as a control category in the analysis. Analysis by socioeconomic status was carried out to determine the relative strengths of the relationships among low, middle, and upper class respondents. Socioeconomic status was measured by a combined score determined by the student's indication of his father's occupation and the highest educational level reached by his father. Occupations were ranked by using the first digit of the prestige scores of Hodge, Siegel, and Rossi. (See Appendix F.)

5. Rural-urban background

Rural-urban background was included as a control category due to the frequently cited relationship between rural or urban background and family size preferences. Kiser et al. (1968) and Westoff et al. (1961), for example, have found that within the United States there is a tendency for the fertility of the population to vary inversely with the size of the community. This variable was measured by asking the student to indicate which of six categories (ranging from open country to a large city of over 250,000) best described the place he was living when he was 16 years old. (See Appendix F.)

Data Analysis

To analyze the hypothesized relationships, the Pearsonian correlation coefficient was utilized. Although it is recognized that the measurements of population concern and acceptable family sizes do not

constitute true interval scales, it is felt that the utilization of the product moment measure was justified due to the loss of information that would result from the use of a less powerful measure (Labowitz, 1967). A meaningful interpretation of the coefficient (r) relies on the fact that its squared value (r^2) is equivalent to the proportion of the total variation in one variable explained by the other. It is, then, a measure of the proportional improvement in the accuracy of estimation obtained by using a specified independent variable to estimate a given dependent variable (Blalock, 1972).

The decision rule employed for hypothesis testing was that the hypothesis would be rejected if the magnitude of r fell below .15, the minimum level felt to indicate a weak but meaningful relationship. Since the sample is clearly not random, tests of significance are inappropriate as indicators of the generalizability of the findings to a larger population. Therefore, while significance tests are reported, their applicability is intended to be illustrative only of the confidence which would be justified in duplicate conclusions from a random sample.

In order to assess the influence of locus of responsibility on the relationship between population concern and expected family size, the hypothesized relationship was examined within categories of the control variable. For example, the relationship was examined among those respondents who located responsibility for population growth within their own religious group and among those who located responsibility for population growth within some other religious group. A similar procedure was employed to determine the influence of locating responsibility for population growth within one's own or some other racial or income group.

To determine the influence of age, religiosity, race, socioeconomic

status, and rural-urban background on the hypothesized relationships, a partial correlation coefficient was computed for those control categories found to be statistically associated (r not less than .10) with both the independent and dependent variable. The value of .10 was chosen as the minimum level of r to assure that any weak bivariate relationship could be tested for possible spuriousness. The decision rule employed was that the influence of the control variable would be rejected unless it reduced the magnitude of r by more than 40 percent in the partial correlation.

In order to assess the influence of the nominal control category religious affiliation on the hypothesized relationships, dummy variables were created and regression analysis employed.

Procedure

Of the sample population of 302 students enrolled in threee Introductory Sociology classes, student absences (68) and failure to complete the entire questionnaire (22) resulted in a sample size of 212 students who completed the questionnaire. The questionnaire was administered during regular class periods. Students were told that the questionnaire was entirely independent of the course in which they were enrolled and that to guarantee anonymity, no names would be used. (See Appendix G: Questionnaire Instructions.)

Students were not told the purposes of the research prior to filling out the questionnaire, and questions tapping population concern were administered prior to presentation of questions concerning knowledge, acceptable family sizes, and expected family size, i.e. before the respondent could have been "cued" as to the experimenter's motives.

Results and Discussion

Population Knowledge and Population Concern

Analysis of student responses to the study's survey of population knowledge indicates that while the majority of students (74.1%) recognized that the population of the world is increasing, only 14.2% were able to correctly identify the present size of the world's population. In addition, only 13.2% of the students knew that the actual number of people in the United States has increased by over a million in the last few years, and only 36.3% were able to correctly estimate the number of people in the United States. (For a summary of the frequency of correct responses to all items on the survey of population knowledge, see Appendix H.)

Though population literacy among the sample is not extremely high, the majority of students do view population growth in both the U.S. and the world as a problem of some seriousness. Only .9% of the students indicated that they felt that world population growth was no problem at all and only 4.2% felt that U.S. population growth was not a problem.

When the relationship between population knowledge and population concern (consisting of the combined U.S. and world responses) was tested, a positive correlation was found. In support of Hypothesis 1, the Pearsonian correlation coefficient showed a value of .17 ($p < .007$) indicating that the greater the population knowledge, the greater the degree of concern over population growth.

Table 1: Degree of Concern over Population Growth in the World and in the U.S.

Perceived Seriousness of the Problem	United States Population Growth		World Population Growth	
	Relative Freq. %	Cum. Freq. %	Relative Freq. %	Cum. Freq. %
Extremely serious (7)	9.4	9.4	22.6	22.6
(6)	19.3	28.8	27.4	50.0
(5)	29.2	58.0	20.3	70.3
(4)	18.9	76.9	17.9	88.2
(3)	12.3	89.2	6.6	94.8
(2)	6.6	95.8	4.2	99.1
No problem at all (1)	4.2	100.0	.09	100.0

General Population Knowledge, Specific Population Knowledge, and Population Concern

Results also indicate support for the second hypothesis that there should be a stronger relationship between general knowledge of population processes and population concern than between specific knowledge of population sizes and growth rates and population concern. (See Appendix H for an indication of items included in the dimensions of general and specific knowledge.) When the dimensions of general and specific knowledge were analyzed separately, the correlation coefficient fell to .10 ($p < .067$) for the relationship between specific knowledge and population concern, and the correlation rose to .17 ($p < .007$) for the relationship between general knowledge and population concern. It would appear, then, that the lack of association between population knowledge and concern found in previous studies may be due to the fact that answers have too often required extremely specific knowledge of demographic facts rather than a general awareness of population processes.

Population Concern and Acceptable Family Sizes

Students' responses to questions in which they were asked to indicate

their opinions of couples who choose to have various numbers of children appear to contradict Blake's (1974) finding of widespread aversion to childlessness and the only child. Within this sample, only 13.2% of the students expressed disapproval of one child families and only 4.7% expressed disapproval of childlessness. The students did not, however, appear to feel that three child families were too large. Only 7.1% expressed disapproval of couples who choose to have three children. In addition, only 22.7% felt that four child families were too large, while 48.2% expressed disapproval of the five child family. As expected, the most acceptable family size among the students was the two child family with only 0.5% disapproving of couples who choose to have two children.

A positive correlation was found between population concern and acceptable family sizes. In support of Hypothesis 3, a correlation coefficient of .23 ($p < .001$) was found between population concern and acceptable family size indicating that the greater the concern over population growth, the greater the disapproval of large families and the approval of small families and childlessness.

Population Concern and Expected Family Size

Among the students sampled, there appears not only to be a remarkable tolerance for childless couples in general, but many students indicate that they expect to remain childless themselves. 11.8% of the students responded that they did not expect to have children, although fewer (4.7%) expected to have only one child. These figures are slightly higher than those reported by Blake (1974) who in her 1971 sample of college youth found that 7% of the men and 9% of the women wanted no children while 3% of the men and 4% of the women indicated that they wanted only one child. As expected, the greatest percentage of students

(42%) indicated that they expected to have two children, while 25.5% expected to have three children and 17.2% expected to have more than three children.

A negative correlation was found between population concern and expected family size ($r = -.20$, $p < .002$). Thus, in support of Hypothesis 4, it appears that the greater the student's concern over population growth, the smaller his expected family size.

Acceptable Family Sizes and Expected Family Size

The results of the study indicate a fairly strong association between the family sizes that students view as acceptable for others and their own family size expectations. In support of Hypothesis 5, a negative correlation of $-.53$ ($p < .001$) was found between acceptable family size and expected family size indicating that the greater the disapproval of large families and the approval of small families and childlessness, the smaller the expected family size.

Locus of Responsibility

As noted earlier, population concern should not influence personal family size expectations if the individual locates responsibility for population growth among some group other than his own. It was, therefore, hypothesized (Hypothesis 6) that the relationship between population concern and expected family size would be greater among those who locate responsibility for population growth among their own group than among those who locate responsibility for population growth within some other racial, income, or religious group. As Table 2 indicates, this hypothesis appears to be supported by the data which show correlation coefficients between concern and expected family size that are systematically greater among those who locate responsibility for population

growth within their own groups than among those who do not.

Table 2: Correlation Coefficients Indicating Relationships between Population Concern and Expected Family Size, Controlling Locus of Responsibility

Question: Which of the following groups do you feel is most responsible for population growth?		
Social Group	Response	
	People who are poorer than you are; People who are more wealthy than you are	People who have about the same income as you do; People of all incomes share equally
Income	-.16 ($p < .049$)	-.22 ($p < .018$)
	People of a race other than your own	People of your own race; People of all races share equally
Race	-.16 ($p < .117$)	-.20 ($p < .007$)
	People who have religious preferences different from your own	People of your own religion; People of all religious persuasions share equally
Religion	-.09 ($p < .265$)	-.24 ($p < .001$)

Controls for Race, Religious Affiliation, Religiosity, Socioeconomic Status, Age, and Rural-urban Background

Before a control variable is introduced into the analysis, one must have some idea of the relationship of the control variable to the independent and dependent variables. If the control variable is not associated statistically both with the independent and dependent variable, then it cannot be responsible for the relationship (Rosenberg, 1986). The matrix below shows the correlations of the independent and dependent variables with the control variables (Table 3).

Table 3: Relationships between Population Knowledge, Population Concern, Acceptable Family Sizes, and Expected Family Size and the Control Variables (Race, Socioeconomic Status, Religion, Religiosity, Age, and Rural-urban Background). Pearsonian Correlation Coefficients.

	Population Knowledge	Population Concern	Acceptable Family Size	Expected Family Size
Race	.29*	.08	.18*	-.16*
SES	.15*	-.03	.18*	-.05
Religiosity	.16*	.01	.23*	-.11*
Age	.02	-.03	.09	-.10*
Rural-urban	.11*	-.18*	.02	.04
Religion A**	.27*	.05	.19*	.14*
Religion B**	.16*	.05	.27*	.21*

*Correlation coefficients of .10 or above.

**As noted earlier, dummy variables were created and multiple regression employed to assess the influence of religious affiliation on the independent and dependent variables. The values listed here, therefore, represent the Multiple R. Religion A represents the categories Catholic or non-Catholic, Religion B represents Protestant or non-Protestant, while the category representing Jewish or no religious affiliation was suppressed.

Employing the decision rule that only those control categories found to be statistically associated (r not less than .10) with both the independent and dependent variables in the hypothesized relationships would be considered, the matrix indicates that only rural-urban background is statistically associated with both the independent and dependent variables in Hypothesis 1 (the relationship between population knowledge and population concern). The partial correlation between population

knowledge and population concern controlling for rural-urban background reveals a value of .19 ($p < .003$) as compared with an r value of .17 for the zero order relationship. Rural-urban background is operating here as a slight suppressor variable rather than as an explanatory variable.

Race, religiosity, and religion were found to be statistically associated with the independent variable of acceptable family sizes and the dependent variable of expected family size in Hypothesis 5. The partial correlations computed between acceptable family sizes and expected family size controlling first for race and then for religiosity indicate, however, that these control variables do not significantly affect the relationship. The partial correlation controlling for race is -.53, the partial correlation controlling for religiosity is -.53, and the zero order correlation coefficient for the relationship is -.54.

To assess the influence of religious affiliation on the relationship between acceptable family sizes and expected family size, the relationship was examined within categories of the control variable. The zero order relationship was not significantly reduced within either the Protestant group ($r = -.52$) or the group including those who had no religious affiliation ($r = -.54$). Although the zero order relationship was substantially reduced when examining the relationship among Catholics ($r = -.37$), the magnitude of the reduction does not reach the level of 40% required to substantiate the influence of the control variable. It might be noted, however, that the reduction in the correlation among Catholics may be due to the fact that Catholics may well apply different family size standards to others than they apply to themselves.

Summary and Conclusions

This study focused on the influence of population knowledge and concern on acceptable family sizes and expected family size. Analysis of the responses of 212 students in Introductory Sociology classes to a questionnaire survey revealed that the greater the students' population knowledge, the greater their degree of concern over population growth.

In order to test Murphy's (1975) assumption that the previously found lack of association between knowledge and concern may be due to the fact that items of knowledge have often required extremely specific demographic knowledge, the two dimensions of general and specific population knowledge were analyzed separately. The findings indicate that there is a stronger relationship between the students' general knowledge of population trends and processes and population concern than between the students' specific knowledge of population sizes and growth rates and population concern.

In addition, analysis of the relationship between population concern and acceptable family sizes revealed that the greater the students' degree of concern over population growth, the greater was their disapproval of large families and their approval of small families and childlessness. These findings suggest that programs designed to create concern over population growth through information-giving may have implications for the development of new family size norms.

Analysis of student responses revealed a fairly strong association

between the family sizes that students view as acceptable for others and their own family size expectations. A negative correlation ($r = -.53$) was found between acceptable family sizes and expected family size indicating that the greater the disapproval of large families and the approval of small families and childlessness, the smaller the expected family size.

A negative relationship was also found between population concern and expected family size, indicating that the greater the student's degree of concern over population growth, the smaller his expected family size. In order to investigate the assumption that locus of responsibility may affect the link between population concern and expected family size, the relationship between concern and expected family size was examined among those students who located responsibility for population growth within their own social group and among those who located responsibility for population growth within some other racial, income, or religious group. A stronger relationship between population concern and expected family size was found among those students who located responsibility for population growth within their own group than among those students who located responsibility for population growth within some other social group.

When the influence of the control categories of race, religiosity, religious affiliation, socioeconomic status, age, and rural-urban background on the hypothesized relationship was examined, none of the control variables was found to significantly affect the relationship.

In summary, it would appear that the efforts of population educators to instill concern over population growth by disseminating information about population problems may have some success not only in reducing expected family sizes but in changing attitudes regarding acceptable

family sizes. As noted earlier, the extent to which commitment to small family sizes becomes truly normative will depend to a great extent upon the strength of prevailing norms and the ideological commitment of those individuals whose concern over population issues leads them to actively try to influence the behavior of others. In addition, the results of this study suggest that the link between population concern and small family size expectations will be mediated by the individual's assessment of the location of responsibility for population growth. It should be the task of future research to further explore this relationship as well as to examine in depth the many other variables that may intervene between the communication of population information and actual fertility behavior. Knowledge of these relationships will have important implications in determining the conditions under which population education will be most effective as a means of achieving voluntary fertility reduction.

BIBLIOGRAPHY

BIBLIOGRAPHY

Barnett, Larry D.
1970 U.S. Population Growth as an Abstractly-Perceived Problem. Demography, 7, pp. 53-60.

Blake, Judith
1974 Can we believe recent data on birth expectations in the United States? Demography, 11, pp. 25-44.

Blalock, Hubert M.
1972 Social Statistics. New York: McGraw-Hill.

Brown, Lester
1974 In the Human Interest. New York: W.W. Norton and Co.

Buckhout, R.
1972 Toward a two-child norm: changing family planning attitudes. American Psychologist, 27, pp. 16-27.

Burleson, N. D., McArthur, D., and Taylor, D.
1969 The time is now: population education. Unpublished manuscript, Center for Population Research, University of North Carolina, 1969. Cited in James F. Fawcett (ed.), Psychological Perspectives on Population. New York: Basic Books, 1973.

Cherrington, B. M. and Miller, L. W.
1933 Changes in attitude as the result of a lecture and reading similar materials. Journal of Social Psychology, 4, pp. 479-484.

Corman, Louise and Schaefer, Judith B.
1973 Population Growth and Family Planning. Journal of Marriage and the Family, 34, pp. 89-92.

Darney, P. D.
1970 Attitudes of married college students on overpopulation and family planning. Public Health Reports, 85, pp. 412-418.

Davis, Kingsley
1963b Social Demography. In Bernard Berelson (ed.), The Behavioral Sciences Today. New York: Basic Books.

Demeny, Paul
1974 The Populations of the Underdeveloped Countries. Scientific American, 231, pp. 49-159.

Dykstra, J. W.
1965 The population explosion: a neglected topic. Social Studies, 56, pp. 190-193.

Droba, D. D.
1932 Education and Negro attitudes. Sociology and Social Research, 17, pp. 137-141.

Eisner, T.
1970 Population control, sterilization, and ignorance. Science, 167, p. 337.

Fawcett, James T.
1973 Psychological Perspectives on Population. New York: Basic Books.

Freedman, Ronald, Whelpton, P. K. and Campbell, Arthur
1959 Family Planning, Sterility, and Population Growth. New York: McGraw-Hill Book Company, Inc.

Freedman, Ronald
1961-62 The Sociology of Human Fertility: A Trend Report and Bibliography, 10/11, No. 2, pp. 35-121.

GAF
1959 Shorthand reference for the first Growth of American Families report. Freedman et al. cited in Ellen Peck and Judith Senderowitz (eds.), Pronatalism: The Myth of Mom and Apple Pie. New York: Thomas Y. Crowell Company, 1974.

Griffith, Janet
1973 Social Pressure on Family Size Intentions. Family Planning Perspectives, 5, pp. 237-242.

Gustavus, Susan O. and Nam, Charles
1970 The Formation and Stability of Ideal Family Size Among Young People. Demography, 7, pp. 43-51.

Gustavus, Susan O. and Henley, James R.
1971 Correlates of Voluntary Childlessness in a Select Population. Social Biology, 18, pp. 277-284.

Hauser, Philip M.
1962 On Design for Experiment and Research in Fertility Control. In Clyde V. Kiper (ed.), Research in Family Planning. Princeton, N.J.: Princeton Univ. Press.

Hetrick, Carl C.; Nash, A. E. Keir; and Wyner, Allan J.
1972 Population and Politics: Information, Concern, and Policy Support among the American Public. Pp. 303-319 in A. E. Keir (ed.), Commission on Population Growth and the American Future Research Reports, Vol. 4. Washington, D.C.: U.S. Government Printing Office.

Hobart, Charles W.
1973 Attitudes toward Parenthood among Canadian Young People. Journal of Marriage and the Family, 35, pp. 71-81.

Horsley, Kathryn; Marden, Parker; Masscalas, Byron; and Brown, Jerry L.
1973 Options. Washington D.C.: The Population Reference Bureau.

Hovland, Carl I.; Janis, Irving L.; and Kelley, Harold H.
1953 Communication and Persuasion. New Haven: Yale University Press.

Huether, Carl A.
1973 Teaching unit on population education. In Equilibrium, 2, pp. 17-36.

Jaffe, Frederick S.
1964 Family Planning and Poverty. Journal of Marriage and the Family, 26, pp. 467-470.

Katz, Daniel and Stotland, Ezra
1959 A Preliminary Statement to a Theory of Attitude Structure and Change. In Sigmund Koch (ed.), Psychology: A Study of a Science, Vol. 3. Formulations of the Person and the Social Context. New York: McGraw-Hill Book Company, Inc.

Killian, Lewis M.
1964 Social movements. In Robert E. L. Faris (ed.), Handbook of Modern Sociology. Chicago: Rand McNally and Co.

Kiser, Clyde V; Grabill, William H.; and Campbell, Arthur A.
1968 Trends and Variations in Fertility in the United States. Cambridge, Mass.: Harvard University Press.

Krech, David; Crutchfield, Richard S.; and Ballachey, Egerton L.
1962 Individual in Society. New York: McGraw-Hill Book Company, Inc.

Kruegel, David L.
1974 Perception of population problems and family size. In press.

Labowitz, Sanford
1967 Some Observations on Measurement and Statistics. Social Forces, 46, pp. 151-160.

Manske, A. J.
1935 The reflection of teachers' attitudes in the attitudes of their pupils. Doctoral dissertation, Teachers College, Columbia University. Reported in Murphy, G., Murphy, L. B., and Newcomb, T. M. (eds.), Experimental Social Psychology. New York: Basic Books.

Murphy, Elaine
1975 Factors which mediate the effect of population information on relevant attitudes and plans: The effects of relevant knowledge of population situation, level of concern, a sense of social responsibility, and a sense of political efficacy on acceptance of proposed population policy and on personal family size expectations. Dissertation Proposal. Human Development Department. University of Maryland.

Murphy, G.; Murphy, L. D.; and Newcomb, T. M.
1937 Experimental Social Psychology. New York: Harper.

Nam, Charles
1971 Comments made at the National Conference on Population Education, Washington, D.C., November.

Newcomb, T. M.
1946 The Influence of Attitude Climate upon some determinants of Information. Journal of Abnormal and Social Psychology, 41, pp. 291-302.

Ogburn, William F.
1964 On Culture and Social Change. Chicago: University of Chicago Press.

Parke, Robert Jr. and Westoff, Charles F., eds.
1972 Aspects of Population Growth Policy. Commission on Population Growth and the American Future Research Reports, Vol. 6, Washington, D.C.: Government Printing Office.

Peck, Ellen and Senderowitz, Judith, eds.
1974 Pronatalism: The Myth of Mom and Apple Pie. New York: Thomas Y. Crowell Company.

Peterson, R. C. and Thurstone, L. L.
1933 Motion Pictures and the Social Attitudes of Children. New York: Macmillan.

Poffenberger, T.; Backman, J. G.; and Weiss, E.
1970 Survey of population knowledge and attitudes of post high school age boys in the United States. Paper presented at the meeting on student knowledge of and attitudes toward population matters. Population Council. New York, December.

Pohlman, Edward
1974 Changes in Views toward Childlessness 1965-70. In Ellen Peck and Judith Senderowitz (eds.), Pronatalism: The Myth of Mom and Apple Pie. New York: Thomas Y. Crowell Company.

Rainwater, L.
1965 Family design: marital sexuality, family size, and family planning. Chicago: Aldine.

Reid, Sue T. and Lyon, David L.
1972 Population Crisis: An Interdisciplinary Perspective. Glenview, Ill.: Scott Foresman and Co.

Rindfuss, Ronald R.
1972 Recent Trends in Population Attitudes. Pp. 465-468 in Robert Parke and Charles F. Westoff (eds.), Commission on Population Growth and the American Future, Vol. 6, Aspects of Population Growth Policy. Washington, D.C.: U.S. Government Printing Office.

Russo, Nancy F. and Brackbill, Yvonne
1973 Population and Youth. In James T. Fawcett (ed.), Psychological Perspectives on Population. New York: Basic Books.

Rosenberg, M.
1968 The Logic of Survey Analysis. New York: Basic Books.

Scarlett, John A.
1972 Undergraduate Attitudes toward Birth Control: New Perspectives. Journal of Marriage and the Family, 34, pp. 312-314.

Schlorff, P. W.
1930 An experiment in the measurement and modification of racial attitudes in school children. Doctoral dissertation, New York University. Reported in Murphy, G., Murphy, L. D., and Newcomb, J. M. (eds.), Experimental Social Psychology. New York: Basic Books.

Schofield, J. W.
1972 A framework for viewing the relation between attitudes and actions. Unpublished doctoral dissertation, Harvard University.

Scott, John Finley
1971 Internalization of Norms, A Sociological Theory of Moral Commitment. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Sherif, Muzafer and Sherif, Carolyn W.
1956 An Outline of Social Psychology. New York: Harper and Brothers.

Smith, Don D.
1968 Cognitive Consistency and Perception of Others' Opinions. Public Opinion Quarterly, 32, pp. 1-15.

Simmons, O. G.
1970 Population education: a review of the field. Studies in Family Planning, 52, pp. 1-5.

Simon, Rita James
1971 Public Attitudes toward Population and Pollution. Public Opinion Quarterly, 35, pp. 93-100.

Van Tienhoven, A.; Eisner, T.; and Rosenblatt, F.
1971 Education and the Population Explosion. Bioscience, 21, pp. 16-19.

Viederman, S.
1970a Developing education programs for population awareness. Paper presented at the Conference on Education and the Environment in the Americas. Jointly sponsored by the Organization of the American States and the American Association for Colleges of Teacher Education, Washington, D.C., October.

1970b Population education: a world-wide review of programs in process and planned. Unpublished manuscript, Population Council.

1972 Population education in Elementary and Secondary Schools in the U.S. In Robert Parke and Charles F. Westoff (eds.), Commission on Population Growth and the American Future, Vol. 6, Aspects of Population Growth Policy. Washington, D.C.: U.S. Government Printing Office.

Wanderer, M.; Seaver, R. M.; and Wagner, N. N.
Preliminary reports on population education research. Unpublished manuscript, University of Washington. School of Medicine, Division of Family Planning Education.

Weiss, Eugene
1971 Comments made at the National Conference on Population Education, Washington, D.C., November.

Westoff, Charles F.; Potter, Robert G.; Sagi, Philip C.; and Mishler, Eliot G.
1961 Family Growth in Metropolitan America. Princeton: Princeton University Press.

Westoff, Charles F. and Potvin, Raymond H.
1967 College Women and Fertility Values. Princeton: Princeton University Press.

Whelpton, P. K. and Kiser, Clyde V., eds.
1946-1958 Social and Psychological Factors affecting Fertility. 5 Vols. New York: Milbank Memorial Fund.

Wilensky, H. L.
1964 Mass Society and Mass Culture. American Sociological Review, 29, pp. 173-197.

Wilke, W. H.
1934 An experimental comparison of the speech, the radio, and the printed page as propaganda devices. Archives of Psychology, No. 169.

Williams, R. M. Jr.
1947 The Reduction of Intergroup Tensions: A Survey of Research on Problems of Ethnic, Racial, and Religious Group Relations. New York: Social Science Research Council, Bull. 57.

Wolman, Dianne Miller
1972 Findings of the Commission's National Public Opinion Survey. Pp. 475-495 in Robert Parke and Charles F. Westoff (eds.), Commission on Population Growth and the American Future, Vol. 6, Aspects of Population Growth Policy. Washington, D.C.: U.S. Government Printing Office.

Young, D.
1927 Some effects of a course in American race problems on the race prejudice of 450 undergraduates at the University of Pennsylvania. Journal of Abnormal and Social Psychology, 22, pp. 235-242.

APPENDIX A

APPENDIX A: SURVEY OF POPULATION KNOWLEDGE

1. What is the population of the world today?
   a. 900 million
   b. 2.2 billion
   c. 3.9 billion
   d. 7.4 billion
   e. 22 billion
   f. I don't know

2. The population of the world is
   a. increasing
   b. decreasing
   c. neither increasing nor decreasing (stable)
   d. I don't know

3. What is the population of the United States today?
   a. Under 50 million
   b. About 75 million
   c. About 110 million
   d. About 210 million
   e. Over 500 million
   f. I don't know

4. Which of the following countries has the greatest number of people?
   a. China
   b. India
   c. United States
   d. Soviet Union
   e. Brazil
   f. I don't know

5. Which of the following countries has the fastest growing population in the world today?
   a. Soviet Union
   b. United States
   c. Mexico
   d. West Germany
   e. India
   f. I don't know

6. In the last few years, the actual number of people in the U.S.:
   a. has declined by over a million
   b. has increased by over a million
   c. has increased by about 500
   d. has stayed just about the same, i.e., has stabilized
   e. I don't know

7. All else being equal, a continuing American family size which averages 3 children would result in:
   a. a population which eventually will stabilize
   b. a population which will grow continuously
   c. a population size very little different from a 2-child average family
   d. an eventual decline in population
   e. I don't know

8. The U.S. population:
   a. is about evenly divided between rural areas and urban areas
   b. is 75% urban
   c. is 75% rural
   d. except for a few big cities, is mostly centered in hundreds of small towns
   e. I don't know

9. In the last few years, legal immigration from other countries has:
   a. represented about 25% of our annual population growth
   b. helped balance the continued decline in population
   c. had almost no impact on the U.S. population
   d. declined considerably
   e. I don't know

10. To know for sure whether a country's population is growing, you would have to know:
   a. if people are having larger families than before
   b. if more people are getting married and having families than before
   c. if people are living longer than before
   d. if the birth rate is larger than the death rate
   e. I don't know

11. In general, countries which have become mainly urban and industrial:
   a. decrease their birth rates
   b. increase their birth rates
   c. have little change in their birth rates
   d. increase their death rate
   e. I don't know

12. In the less developed countries...
   a. birth rates are high
   b. literacy rates are high
   c. per capita income is high
   d. population growth rates are low
   e. I don't know

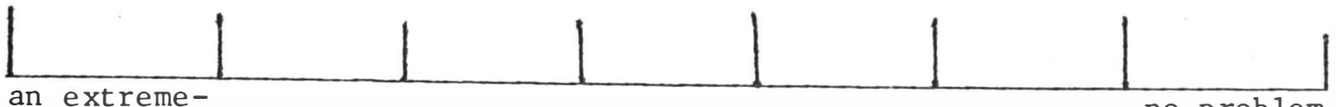
13. Which has not been a major cause of the population explosion:
   a. modern preventive medicine
   b. increase in birth rate
   c. improved sanitation
   d. lower infant mortality
   e. I don't know

APPENDIX B

APPENDIX B: LEVEL OF CONCERN

Please indicate your attitude toward the topics below by marking an X in the slot that comes closest to the way you feel:

1. I feel that marijuana smoking in the United States is:



an extremely serious problem — no problem at all

2. I feel that racial discrimination in the United States is:

an extremely serious problem — no problem at all

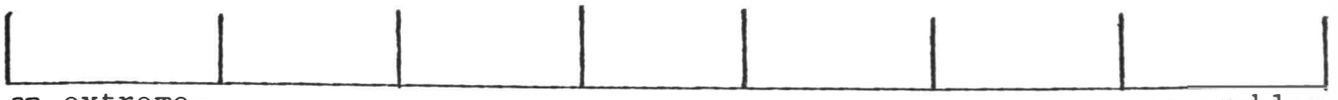
3. I feel that the growth of world population is:

an extremely serious problem — no problem at all

4. I feel that unemployment in the United States is:

an extremely serious problem — no problem at all

5. I feel that population growth in the United States is:



an extremely serious problem — no problem at all

6. I feel that illegal gambling is:

an extremely serious problem — no problem at all

APPENDIX C

APPENDIX C: ACCEPTABLE FAMILY SIZES

1. What is your opinion of working mothers with young children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

2. What is your opinion of married couples who choose to have 4 children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

3. What is your opinion of married couples who choose to have one child?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

4. What is your opinion of parents who insist that their children attend church regularly?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

5. What is your opinion of married couples who choose to have no children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

6. What is your opinion of unmarried mothers who seek abortions?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

7. What is your opinion of married couples who choose to have three children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

8. What is your opinion of married couples who choose to have 5 or more children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

9. What is your opinion of married couples who choose to have 2 children?
   a. strongly approve
   b. approve
   c. no opinion
   d. disapprove
   e. strongly disapprove

APPENDIX D

APPENDIX D: EXPECTED FAMILY SIZE

1. Do you have any children?
   a. no (If not, skip to #4)
   b. yes

   2. How many children do you have?
      a. 1
      b. 2
      c. 3
      d. 4
      e. 5 or more

   3. How many more children do you expect to have?
      a. 0
      b. 1
      c. 2
      d. 3
      e. 4
      f. 5 or more

   GO to Survey III (Next Page)

4. Do you intend to have any children?
   a. no (If no, go to Survey III, next page)
   b. yes

   5. How many children do you expect to have altogether?
      a. 1
      b. 2
      c. 3
      d. 4
      e. 5 or more

APPENDIX E

APPENDIX E: LOCUS OF RESPONSIBILITY

1. Which of the following groups do you feel is most responsible for population growth:
   a. people who are poorer than you are
   b. people who are more wealthy than you are
   c. people who have about the same income as you do
   d. People of all incomes share equally in the amount they contribute to population growth.

2. Which of the following groups do you feel is most responsible for population growth:
   a. people of your own race
   b. people of a race other than your own
   c. People of all races share equally in the amount they contribute to population growth.

3. Which of the following groups do you feel is most responsible for population growth:
   a. people of your own religion
   b. people who have religious preferences different from your own
   c. People of all religious persuasions share equally in the amount they contribute to population growth.

APPENDIX F

APPENDIX F: BACKGROUND INFORMATION

Sex:

1. male
2. female

Race:

1. black
2. white
3. other

Do you belong to a church or religious organization?

1. yes
2. no

If yes, to what religious denomination or organization do you belong?

_____

Which of the following statements comes closest to expressing your relationship to religion in general?

1. I am a deeply religious person
2. I am a moderately religious person
3. I am not a very religious person
4. I am not religious at all

How old were you at your last birthday? _____

What was the highest educational level reached by your father?

1. no formal schooling
2. less than high school
3. some high school
4. high school completed
5. some college
6. college completed
7. graduate school

What is your present educational status?

1. Freshman
2. Sophomore
3. Junior
4. Senior

What is your major field of study? _____

Your father's main occupation is (or was): _____
Give the name of his job (i.e., "auto mechanic" or tell the kind of work he does -- not where he works.

Which of the following categories comes closest to the type of place you were living in when you were 16 years old?

1. In open country but not on a farm
2. On a farm
3. In a small city or town (under 50,000)
4. In a medium-size city (50,000-250,000)
5. In a suburb near a large city
6. In a large city (over 250,000)

APPENDIX G

APPENDIX G: QUESTIONNAIRE INSTRUCTIONS

Directions:

Please answer every item on the questionnaire. When an answer is difficult, choose the one which most nearly fits what you think, or, where appropriate, indicate "I don't know".

Please do not write your name on the questionnaire. The questionnaire is entirely independent of the course you are enrolled in, and your responses will remain completely anonymous. Your teachers will not see the questionnaires or the results.

The numbers shown in parentheses and beside answer categories should be ignored; they are included only to assist the processing of your answers.

Thank you for participating in this study.

APPENDIX H

APPENDIX H: SUMMARY OF THE FREQUENCY OF CORRECT RESPONSES TO ITEMS INCLUDED IN THE SURVEY OF POPULATION KNOWLEDGE*

Question (Correct Response)	Correct Responses	
	Freq.	%
1. What is the population of the world today? (3.9 billion) Specific	30	14.2
2. The population of the world is... (increasing) General	157	74.1
3. What is the population of the United States today? (about 210 million) Specific	77	36.3
4. Which of the following countries has the greatest number of people? (China) Specific	140	66.0
5. Which of the following countries has the fastest growing population in the world today? (Mexico) Specific	4	1.9
6. In the last few years, the actual number of people in the U.S.... (has increased by over a million) Specific	28	13.2
7. All else being equal, a continuing American family size which averages 3 children would results in... (a population which will grow continuously) General	92	43.4
8. The U.S. population... (is 75% urban) Specific	100	47.2

9.	In the last few years, legal immigration from other countries has... (represented about 25% of our annual population growth) Specific	51	24.1
10.	To know for sure whether a country's population is growing, you would have to know... (if the birth rate is larger than the death rate) General	176	83.0
11.	In general, countries which have become mainly urban and industrial... (decrease their birth rates) General	60	28.3
12.	In the less developed countries... (birth rates are high) General	170	80.2
13.	Which has <u>not</u> been a major cause of the population explosion... (increase in birth rate) General	17	8.0

*Questions are labeled as general or specific to indicate their inclusion in either the dimension of general population knowledge or the dimension of specific population knowledge.