

The Effect of Sex Education on Teenagers in St. Kitts and Nevis¹

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Knowledge of sexual matters is one of several key factors capable of influencing teenage reproductive behavior. This article reports the results of initial and followup surveys designed to test such knowledge among adolescent students in St. Kitts and Nevis before and after they received a family life/sex education course in the mid-1980s. This course provided information about fundamentals of human reproduction and contraception, human growth and development, emotional development, and issues of adolescent sexuality.

Adolescent childbearing poses a complex social problem (1). Whereas the birth of a child is an occasion of joy and hope for most adult women, for teenage mothers, especially those under 17 years old, it can mean termination of formal education, unemployment, family breakdown, emotional stress, an unusually high risk of health problems for the mother and child, and ultimate dependence of both on public agencies. The literature is replete with studies that highlight the negative health, social, economic, and psychological consequences of early childbearing (2-5).

A number of psychosocial and economic factors are thought to contribute to teenage pregnancy and childbearing: desire to demonstrate fertility, lack of career alternatives, feelings of alienation, and subtle family influence (6). Another factor, one of great relevance to sex education programs, is ignorance about the relationship between sex and reproduction as well as about the reproductive functioning of the body (7). It is not surprising that teens are misinformed, given that the main sources of sex and family life information are peers or older siblings who are often misinformed themselves (8-10).

The problem of adolescent pregnancy is particularly acute in a number of the island states of the Eastern Caribbean. In these countries, where pregnancy is the single most important reason why girls drop out of school, teenage girls with limited employment prospects commonly regard becoming pregnant as the entry point into adulthood (11). While many government officials and private citizens decry the high levels of teenage pregnancy, to a certain degree it is socially accepted. Adolescent childbearing is not a recent phenomenon; many of the mothers of teens in these countries began

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their own childbearing in this way. And while teens who become pregnant may expect an initial reaction of shock or disapproval from their parents, the baby is often accepted into the family once it arrives.

While there is widespread recognition that the pattern of teenage pregnancy poses sociologic and demographic problems in the English-speaking Eastern Caribbean, there is less agreement about how best to change this pattern. One much-discussed intervention has been that of providing family life education in the schools, the rationale being that ignorance and acceptance of incorrect beliefs about sexuality, pregnancy, and contraceptives increases the likelihood of early sexual initiation. Proponents of family life education argue that it will provide teens with the information needed to avoid a "pregnancy by ignorance," both by teaching them basic concepts of reproduction and (in those programs that allow it) introducing them to contraception. Opponents of family life education—especially when it includes contraceptive information—claim that such education encourages teens to initiate sexual activity at an earlier age, thus aggravating the problem of teen pregnancy while degrading the morals of society.

Over the past decade the United Nations Population Fund (UNFPA), through the Pan American Health Organization, has been a strong supporter of sex education programs in the Eastern Caribbean. Its efforts, together with those of many other individuals and organizations, have resulted in sex education programs being carried out in most Eastern Caribbean countries. However, until recently no attempt was made to systematically evaluate the effect of these programs on adolescent knowledge and behavior.

Of the Eastern Caribbean countries, St. Kitts and Nevis (two islands that together

form a small country with an estimated 1989 population of 47,500 inhabitants) has been among the most progressive in terms of sex education. Efforts to integrate this topic into school curricula began in 1970. Whereas other countries shied away from "sex education" in favor of less explicit information regarding "family life," officials in the St. Kitts and Nevis Ministry of Education recognized the need for young people to be exposed to the basic facts of reproduction; and, progressively since the early 1970s, school curricula have been modified accordingly.

The study described here, carried out on St. Kitts and Nevis during the 1983–84 school year, sought to test the effects of a sex education course offered within a high school curriculum on teens' knowledge of reproductive anatomy and physiology and also upon their sexual behavior and patterns of contraceptive use. A quasi-experimental design was used to test two hypotheses, these being (1) that sex education results in sexual experimentation at an earlier age; and (2) that sex education increases the use of contraceptives among teens who are already sexually active.

METHODOLOGY

The project was designed to test the effect of family life/sex education by comparing the knowledge and reported practices of two groups of teens: those who received special sex education classes and those who did not. To this end, all six government high schools in the two-island State were assigned to one of two groups (experimental vs. control) in a manner directed at providing a reasonable match in terms of the age distribution and socioeconomic status of the students in the two groups.

Study Population

It was intended that students 12 to 15 years of age should receive this instruc-

tion. Typically, students in this age range are found in forms 1–4 (equivalent to grades 8–11). Therefore, the study population consisted of students in forms 1–3 supplemented by a special group of form 4 children.⁶ It should be noted, however, that a student's age did not necessarily match his or her form level exactly, and so a few students 11 years old or 16–17 years old were present in the classes selected for this study.

There were two reasons for concentrating on the 12–15 year age group. First, the information to be provided was judged more relevant and useful for this age group than for older teens, it being reasonable to assume that by age 16 most teens are fairly knowledgeable and may already have experimented with sex. Second, the curriculum for the 12–15 age group was more flexible and allowed for inclusion of an extra subject area, while older students had a more rigorous curriculum and needed to prepare for final examinations.

Syllabus

The syllabus, developed and approved by Ministry of Education officials and classroom teachers, covered four main areas:

- fundamentals of human reproduction (including conception and contraception);
- human growth and development;

- emotional development;
- issues and values in adolescent sexuality.

A similar curriculum outline was developed for all forms. However, the content, suggested teaching materials and methods, and time allocated to each unit of study varied according to the form, resulting in two syllabuses: one for the lower forms (1 and 2) and the other for the upper forms (3 and 4).

Initial plans called for the instruction to be given during two 40-minute sessions each week for 30 of the 38 weeks in the school year. However, because of competing activities, the instruction was only given for 26 weeks. These sessions were taught in "time slots" allocated to health/family life education or to other subjects such as home economics, human biology, and health sciences.

Twelve teachers were responsible for teaching the sex education course in the experimental schools. Of these, eight had prior training and experience in teaching sex or family life education. The preparation of all the teachers was strengthened by a four-week workshop for sex education teachers held during the summer vacation preceding the school year when the experimental program was carried out.

Data Collection

Evaluation of the program was based on a before/after survey of students in both the experimental and control schools. The survey questionnaire, designed to measure knowledge of reproductive processes and behavior related to sexual activity and contraception, was pretested in different forms (grade levels) before being used in this study.

The baseline survey was conducted during the first weeks of the school year (September–October 1983) before the sex

⁶The study was limited to those students who had a slot in their curriculum for family life education. Most students in form 4 or above did not have this slot, their program being more academically rigorous in order to prepare them to sit for comprehensive examinations. The reason that one form 4 group was included was that its members were on a track that was less rigorous academically and thus there was time to include the family life education course.

education classes were introduced. A total of 2,122 students from the six participating schools completed a self-administered questionnaire under "examination conditions"; they were asked not to discuss the questions or their answers during the "test," and teachers were only allowed to explain instructions as necessary. An exception was made for students in a "remedial" class, whose teacher was allowed to assist in reading the instructions and questions, as well as in recording responses in some cases.

The followup survey was conducted in the final weeks of the school year (June 1984), using the same questionnaire employed in the baseline survey. However, because of difficulties in scheduling this survey within the examination period, some students left on vacation before completing the followup questionnaire. For this reason, a second-round followup survey was conducted during the first week of the following school year (September 1984). Even with this procedure, only two-thirds (66.4%) of the students completing the baseline questionnaire also completed the followup ($n = 1,408$). A total of 714 students were lost to followup, 345 and 369 from the experimental and control groups respectively.

Statistical Methods

As indicated in Table 1, preliminary examination of the data indicated statistically significant differences at the 5% level between the experimental and control schools regarding the distribution of respondents by form and sex. Most notably, form 1 was more heavily represented in the experimental than in the control group. A chi-square test indicated significant differences between the experimental and control groups by grade (chi-square = 384.5, $p < .001$) and by "before" vs. "after" test results (chi-square = 79.26, $p < .001$). No statistically sig-

nificant difference was found in the gender distribution between "before" and "after" test results. However, significant differences were found in the gender distribution of the experimental and control groups (chi-square = 28.91, $p < .001$).

To help determine whether all the data collected should be used, the effect of the sex education provided was assessed using a series of multiple logistic regression analyses. In each analysis the predicted variable was treatment group (experimental vs. control) as in a case-control study. Predictors included a variable indicating before or after survey questionnaire results, one of the knowledge items, and the interaction of the knowledge item with the before and after survey questionnaire results. If this interaction item was statistically significant, it indicated more change in one group than in the other. Teen gender and form in school were also included as covariates.

Two sets of analyses were performed. One used all the data, while the other included only data from those subjects who had completed both the before and after survey questionnaires. The two sets of analyses yielded the same results. That is, if one type of analysis indicated a statistically significant effect with respect to a given item, the other also did so. The results presented below are based on all available data.

RESULTS

Demographic Profile of the Students

As noted above, the students in this study ranged in age from 11 to 17 years, most being 12 to 15. However, as Table 1 shows, the average age of the students in the experimental schools was about one year below that of the students in the control schools. Because age and form are closely related, a similar difference

Table 1. Three sociodemographic variables (age, school form, and gender) with respect to which the surveyed members of the experimental and control groups differed.

	Experimental group (n = 2,202) ^a	Control group (n = 1,321) ^a	Statistical values
Age (in years):			
Mean age	13.4	14.19	t = 12.78 ^b
SD ^c	1.52	1.94	p < .001
Form (% of group in form indicated):			
1	47.3	15.3	$\chi^2 = 384.5$ p < .001
2	18.2	23.7	
3	20.8	34.4	
4	13.7	26.6	
Gender (% of group):			
Males	52.2	42.8	$\chi^2 = 28.91$ p < .001
Females	47.8	57.2	

^aThese totals include both pre and post responses.

^bt larger than 2.0 indicates group differences.

^cSD = standard deviation.

was observed between the forms in which the experimental and control students were found, irrespective of whether those initially surveyed or only those completing the followup questionnaire were considered. (The Table 1 data indicate that nearly half the experimental group was in form 1 as compared to only 15% of the control group; while only 35% of the experimental group were in forms 3 and 4 as compared to 61% of the control group.) These age and form differences reflect a structural difference in the experimental and control schools. That is, two of the schools in each group had students in forms 1–5; however, the third school in the experimental group had only form 1–4 students, while the third school in the comparison group included forms 3–5.

Gender differences also existed, just over half the initial and followup survey respondents in the experimental group being boys (53% and 52%, respectively), as compared to only 44% and 42% of the control group survey respondents (see Table 1).

These differences in the age and gender composition of the two groups are

potential sources of bias in this study. However, in the analyses that follow they are controlled for using multiple logistic regression.

Household composition is indirectly reflected in data on the person(s) caring for the student at home. Roughly a quarter of the students reported that they lived with both parents; approximately half lived with just one parent; and the remaining quarter lived with someone other than a parent.

Career Goals and Attitudes toward School

The surveyed students were asked to indicate their feelings about school and their aspirations for the future. The great majority (over three-quarters of the respondents in both groups on both surveys) expressed positive attitudes about school. More than half indicated plans to pursue a career, i.e., to become a professional or a skilled artisan, while less than 20% indicated a desire to work immediately upon graduating from school.

The Impact of Sex Education upon Knowledge

The evaluation focused on four areas of knowledge: changes at puberty, reproductive anatomy and physiology, intercourse and pregnancy, and contraception. Tables 2 through 5 show data relating to the students' knowledge of these matters.

Changes at Puberty

The students were given a set of 12 statements relating to puberty and asked to mark them true or false. As Table 2 indicates, the students in the experimental group had higher initial survey scores in this area than those in the control group. Although the followup survey results suggested improved knowledge levels

Table 2. Experimental and control subjects' knowledge of specific physical changes at puberty before and after the education program, as indicated by results of the initial and followup surveys.

	Experimental group		Control group	
	Before (n = 1,274)	After (n = 929)	Before (n = 848)	After (n = 479)
<i>Percentages of the survey respondents who knew:</i>				
1. Puberty is the time when a girl's body changes to a woman's	75.3	92.8	72.2	79.7
2. Puberty is the time when a boy's body changes to a man's	72.0	89.2	68.2	75.4
3. A girl's breasts get larger at puberty	75.7	91.4	70.8	82.7
4. A girl gets hair under her arms at puberty	74.0	88.5	68.4	78.9
5. At puberty a girl starts to see her period	74.2	86.2	74.5	80.8
6. At puberty a girl can become pregnant	72.0	79.2	69.7	72.0
7. All girls do not get to puberty at the same time	74.2	88.7	82.9	85.0
8. A boy starts to get hair under his arms and on his face at puberty	64.8	80.8	60.6	71.4
9. A boy's voice changes at puberty	69.5	89.7	72.8	82.0
10. At puberty a boy's penis gets larger	76.8	89.0	63.1	69.3
11. At puberty a boy can make a girl pregnant	78.2	86.7	75.4	78.5
12. All boys do not reach puberty at the same time	75.7	89.8	82.5	84.3
Mean number of correct answers (of possible 12)	8.8	10.5	8.6	9.4
SD ^a	3.44	2.34	3.78	3.36

^aSD = standard deviation.

over time in both groups, students in the experimental group showed greater improvement than those in the control group.

Reproductive Anatomy and Physiology

In contrast, the control group showed somewhat greater initial knowledge of reproductive anatomy than did the experimental group, the average number of

correct answers being 3.6 out of 11 questions for the control group as compared to 2.9 for the experimental group (Table 3). However, the followup survey data indicate that while both groups improved, the students in the experimental group overtook their control group counterparts, outscoring them on all but two questions (numbers 6 and 7). In some cases the proportion of students answering the questions correctly increased by as much as 35%.

Table 3. Experimental and control subjects' knowledge of basic sexual anatomy before and after the education program, as indicated by results of the initial and followup surveys.

	Experimental group		Control group	
	Before (n = 1,274)	After (n = 929)	Before (n = 848)	After (n = 479)
<i>Percentages of survey respondents who answered each item correctly:</i>				
1. Sperm is made in the (testes)	23.1	52.5	42.0	49.5
2. Releasing of semen from the man's penis is called (ejaculation)	21.2	54.9	37.3	49.3
3. Releasing of an egg from the woman's ovary is called (ovulation)	29.1	54.7	38.8	49.1
4. The scrotum holds the (testes)	20.3	49.9	24.9	31.9
5. Menstruation is (discharge of blood from the uterus or womb)	31.6	67.1	57.5	61.8
6. A woman has (three) openings from her waist down	17.0	28.7	18.5	32.2
7. A man has (two) openings from his waist down	41.4	52.7	43.8	56.2
8. Conception is (the sperm fertilizing the egg)	19.3	38.1	15.6	18.4
9. Ovaries are (glands where the eggs are stored)	31.2	61.2	50.8	56.6
10. The male form of sterilization is (vasectomy)	26.4	32.5	17.1	29.6
11. The female form of sterilization is called (tubal ligation)	25.9	31.5	18.2	19.2
Mean number of correct answers (of a possible 11)	2.9	5.2	3.6	4.5
SD ^a	1.90	2.70	2.30	2.69

^aSD = standard deviation.

Table 4. Experimental and control subjects' knowledge of the relationship between sexual intercourse and pregnancy before and after the education program, as indicated by results of the initial and followup surveys.

	Experimental group		Control group	
	Before (n = 1,274)	After (n = 929)	Before (n = 848)	After (n = 479)
<i>Percentages of survey respondents who knew that:</i>				
1. Pregnancy takes place when a sperm from the boy or man meets with an egg from the girl or woman	80.5	85.0	85.7	82.9
2. A girl can get pregnant the first time she has sex	50.6	61.4	57.2	58.2
3. A girl can get pregnant even if she does not have an orgasm	31.2	40.7	29.2	34.0
4. A girl can get pregnant even if the boy pulls out his penis before he comes (or breaks)	22.8	24.8	15.3	18.2
5. A girl can get pregnant if she has sex when she is seeing her period	44.7	54.9	45.8	44.7
6. A girl will not get sick if she does not have sex when she feels like it	57.2	67.3	62.6	64.5
7. A boy will not get sick if he does not have sex when he feels like it	55.5	71.6	61.3	65.5
8. A girl cannot get pregnant from kissing	77.2	85.9	78.5	79.1
9. A girl does not have to have sex often in order to get pregnant	32.2	50.9	50.9	52.4
10. There are things a boy can use to prevent making a girl pregnant	86.0	90.0	89.7	83.3
11. There are things a girl can use to prevent getting pregnant	76.1	85.6	81.4	83.3
12. Once a girl starts to see her period she can get pregnant	78.8	81.4	81.7	78.5
Mean no. of correct answers (of a possible 12)	6.9	8.0	7.4	7.4
SD ^a	2.27	2.34	2.43	2.66

^aSD = standard deviation.

Intercourse and Pregnancy

Initially, as Table 4 shows, students in the control group scored higher (mean score of 7.4 correct answers) than those in the experimental group (mean score of 6.9 correct answers) on the 12 questions relating to intercourse and pregnancy. However, the experimental group students showed some improvement (because of improved scores on questions 5, 7, 9, and 10) while the average score of the control group students remained 7.4.

Contraceptive Methods

Contraception and contraceptive methods were subjects referred to explicitly in the sex education syllabus. In both the baseline and followup surveys students were asked to list the contraceptive methods that they knew; later on the questionnaire gave them a list of methods and asked them to mark the ones they knew. Not surprisingly, the students' knowledge appeared substantially greater when the list

was provided. Data on the "prompted" knowledge registered in this manner are shown in Table 5.

The methods that seemed most widely known to both groups were the pill and the condom, followed by abstinence, withdrawal, and the rhythm method. However, the average number of methods known at the time of the initial survey was slightly higher in the control group (mean = 2.8) than in the experimental group (mean = 2.4). These results were reversed on the followup survey, where it appeared that the experimental group students knew of slightly more methods than their control group counterparts.

Impact of Sex Education on Initiation of Sexual Activity

Opponents of sex education argue that this type of program encourages students to experiment with sex at an earlier age than they would otherwise. Part of the evaluation was directed at supporting or refuting this hypothesis.

Table 5. Experimental and control group members' prompted knowledge of contraceptive methods before and after the education program, as indicated by results of the initial and followup surveys.

	Experimental group		Control group	
	Before (n = 1,274)	After (n = 929)	Before (n = 848)	After (n = 479)
<i>Percentages of survey respondents who had heard of the following contraceptive methods:</i>				
Pill	58.0	64.7	70.2	66.0
Condom	40.1	57.1	53.4	57.2
Abstinence	36.9	46.0	46.3	44.9
Withdrawal	27.2	31.4	28.3	33.4
Rhythm	25.5	27.1	24.4	26.9
Spermicides	18.0	36.3	21.6	24.2
Tubal ligation	14.8	24.0	19.8	24.8
IUD	14.8	31.3	15.0	16.5
Mean number of methods known	2.4	3.2	2.8	2.9
SD ^a	2.18	2.58	2.2	2.54

^aSD = standard deviation.

On the initial survey questionnaire over a third of the students in each group (43.7% of the experimental group and 38.8% of the control group) reported having had sex at some time (Table 6). However, the followup survey data suggested these percentages had fallen (to 40.0% and 31.7% of the two groups, respectively).

Use of Contraception among Sexually Active Teens

Proponents of sex education claim that teens will experiment with sex whether or not they receive sex education, and that the advantage of sex education is that it increases contraceptive use among those students who are already sexually active. In the program described here, contraception was explicitly part of the curriculum, and thus it was of interest to find whether sexually active students in the experimental group were more likely than those in the control group to have used a contraceptive method during their last sexual encounter.

On the initial survey approximately one-third of the sexually active students in both groups reported having used a contraceptive method during their last sexual contact (Table 7). There was very little change in this percentage on the followup survey, suggesting that the sex education program did not result in an increase in the use of contraceptives among sexually active teens.

DISCUSSION AND CONCLUSIONS

Most of the research to date on the impact of sex education has been conducted in the United States and Europe, in part because many countries in the developing world have not felt the need or inclination to introduce this subject

matter into their public school curricula. However, in recent times questions have been raised about the effectiveness of sex education programs in increasing knowledge and changing the attitudes and behavior of teenagers in the United States (12). Thus, comparisons between findings of the study reported here, which adopted a quasi-experimental design, and other published reports must be made with caution.

Nonetheless, the results from St. Kitts and Nevis concur with data from other studies in that both show sex education to increase knowledge about the facts of human reproduction and contraceptive methods (13-16). It also supports previous studies indicating that sex education does not result in earlier initiation of sexual activity (17, 18). What has been observed elsewhere is that the form (grade) achieved and age, rather than sex education, are important in determining sexual behavior; and that older students with relatively low academic standing are more likely to be sexually active (19).

At least one study from the United States indicates that sexually active teenagers who have received formal sex education are more likely than others to have practiced contraception at some time (18). However, followup survey data from the St. Kitts and Nevis study did not show increased use of contraceptives among sexually active teens in either the experimental or control group.

Of course, knowledge alone is not enough to ensure modified behavior, and so this finding may be explained by the fact that contraceptives are only available from pharmacies and government health centers. There are as yet no special outlets making contraception available to teens and students, and so there may be financial and psychologic barriers for members of these groups who wish to practice contraception.

The St. Kitts and Nevis sex education

Table 6. Initiation of sexual activity by experimental and control group members, as reported during the surveys before and after the education program.

	Experimental group		Control group	
	Before (n = 1,273)	After (n = 927)	Before (n = 848)	After (n = 473)
<i>Percentages of survey respondents reporting that they had ever had sex:</i>				
Total:				
Number	558	371	329	150
%	43.8	40.0	38.8	31.7
Boys:				
Number	508	337	296	130
%	76.4	70.2	80.0	66.7
Girls:				
Number	50	34	33	20
%	8.2	7.6	6.9	7.2
By form, boys:				
8–9:				
Number	307	221	82	69
%	74.7	66.0	77.4	71.1
10–11:				
Number	201	116	214	61
%	79.1	80.0	81.1	62.2
By form, girls:				
8–9:				
Number	19	11	6	10
%	4.8	3.7	3.7	6.6
10–11:				
Number	31	22	27	10
%	14.4	15.2	8.5	7.9

Table 7. Use of contraceptive methods during sexual contact by experimental and control group members, as reported during the surveys before and after the education program.

	Experimental group		Control group	
	Before (n = 558)	After (n = 371)	Before (n = 329)	After (n = 151)
<i>Percentages of sexually active survey respondents who reported doing something to prevent pregnancy during last sexual contact</i>				
	34.8	32.6	38.9	33.1
Numbers reporting use of some method	194	121	128	50
Numbers reporting the method used, by type				
Condom	49	48	62	23
Withdrawal	6	4	7	1
Pill	8	5	2	1
Other	3	1	2	1

program did conform to two principles that have been found important elsewhere. First, an attempt was made to establish linkages between sex education, health education, and the more "academic" subjects, and to develop coordinated programs (20). Second, the St. Kitts and Nevis program followed guidelines set down by Kapp et al. (21) which assert that a sex education curriculum should include values, role, and goal clarification; family life, health, and sex education; methods of contraception; and the opportunity to learn and practice effective decision-making.

Sexual activity among teens is evident on St. Kitts and Nevis, independent of sex education, and it would be unrealistic to expect it to decline. Therefore, if sexually active teens are to be protected from unwanted pregnancy, contraception appears to be the most realistic option. If this option were accepted by local authorities, it would still be necessary to combine it with more explicit contraceptive information in sex education classes; with a readily available, low-cost source of supply for teens; and with a community-based education program that integrates the support and input of the family, community leaders, and health professionals (22, 23).

REFERENCES

1. Senderowitz J, Paxton JM. Adolescent fertility: worldwide concerns. *Popul Bull.* 1985;40:2.
2. Furstenberg F Jr. The social consequences of teenage parenthood. Menken J. The health and social consequences of teenage childbearing. Trussell J. Economic consequences of teenage childbearing. In: Furstenberg F Jr, Lincoln R, Menken J, eds. *Teenage sexuality, pregnancy and childbearing*. Philadelphia: University of Pennsylvania Press; 1981.
3. Trussell J, Menken J. Early childbearing and subsequent fertility. *Fam Plann Perspect.* 1978;10:4.
4. Liskin L. Youth in the 1980s: social and health concerns. *Popul Rep [M-9]*. 1985.
5. Singh S, Woelf D. *Today's adolescents, tomorrow's parents: a portrait of the Americas*. New York: Alan Guttmacher Institute; 1990; 74-79.
6. Nadelson CC, Notman MT, Gillon JW. Sexual knowledge and attitudes of adolescents: relationship to contraceptive use. *Obstet Gynecol.* 1980;55(3):340-45.
7. Jagdeo TP. *Teenage pregnancy in the Caribbean*. New York: International Planned Parenthood Federation, Western Hemisphere Region; 1984.
8. Thornburg HD. Adolescent sources of information on sex. *J Sch Health.* 1981; 51(4):274-77.
9. Reichelt PA, Werley HH. Contraception, abortion, and venereal disease: teenagers' knowledge and the effect of education. In: Furstenberg F Jr, Lincoln R, Menken J, eds. *Teenage sexuality, pregnancy and childbearing*. Philadelphia: University of Pennsylvania Press; 1981.
10. Warren CW, Powell D, Morris L, Jackson J, Hamilton P. Fertility and family planning among young adults in Jamaica. *Int Fam Plann Perspect.* 1988;14(4):137-41.
11. Jagdeo TP. Teenage pregnancy in the Caribbean: a plea for action. Paper presented at the Conference of Caribbean Parliamentarians on Population and Development; Barbados; 1985.
12. Stout J, Rivara FP. Schools and sex education: does it work? *Pediatrics.* 1989; 83(3):375-79.
13. Kirby D. *Sexuality education: an evaluation of programs and their effects*. Santa Cruz, California: Network Publications; 1984.
14. Parcel G, Luttman D. Evaluation of a sex education course for young adolescents. *Fam Relat.* 1981;30:55.
15. Reichelt P, Werley H. A sex education program for sexually active teenagers. *J Sch Health.* 1975;45:100.
16. Darabi KF, Jones J, Varga P, House M. Evaluation of sex education outreach. Paper presented at the Annual Meeting of the National Family Planning and Reproductive Health Association; Washington, DC; 1981.
17. Zelnick M, Kim Y. Sex education and its association with teenage sexual activity, pregnancy and contraceptive use. *Fam Plann Perspect.* 1982;14(3):117-26.

18. Dawson D. Effects of sex education and adolescent behavior. *Fam Plann Perspect.* 1986;18(4):162.
19. Philliber SG, Tatum ML. Sex education and the double standard in high school. *Adolescence.* 1982;17(66):273.
20. Kappelman M, Khan M, Washington V, Stine O, Cornblath M. A unique school health program in a school for pregnant teenagers. *J Sch Health.* 1974;44(6):303.
21. Kapp L, Taylor AB, Edwards LE. Teaching human sexuality in junior high school: an interdisciplinary approach. *J Sch Health.* 1980;50(2):80-83.
22. Finkel ML, Finkel S. Sex education in high school. *Society.* 1985;23(1):48-52.
23. Vincent ML, Clearie AF, Schluchter MD. Reducing adolescent pregnancy through school and community-based education. *JAMA.* 1987;257(24):3382-86.



Communication Strategies for AIDS Prevention

The School of Public Health of the University of Illinois in Chicago is offering a summer course in communication strategies for AIDS prevention. This program is designed to familiarize health workers with media methods and to provide media personnel with a working knowledge of relevant medical facts. It is intended for both media and health care personnel involved in health education and provides practical, hands-on instruction in the development of culturally appropriate materials in Spanish or Portuguese. Participants will work with focus groups in the Chicago hispanic community and with local advertising agencies, under the supervision of faculty of the School of Public Health.

The course will run from 29 June through 24 July 1992. Enrollment is limited to 15. For more information, please contact Dr. A. Ockerse, School of Public Health MC 923, University of Illinois, 2035 West Taylor Street, Chicago, IL 60612, U.S.A.; telephone (312) 996-8866.