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**CHANGING ADOLESCENTS' BELIEFS
ABOUT PROTECTIVE SEXUAL BEHAVIOR:
THE BOTSWANA TSA BANANA PROGRAM**

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CHANGING ADOLESCENTS' BELIEFS ABOUT PROTECTIVE SEXUAL BEHAVIOR: THE BOTSWANA TSA BANANA PROGRAM

Several countries in sub-Saharan Africa have been severely affected by the HIV/AIDS crisis. Botswana is no exception. Estimates suggest that one out of six sexually active adults in Botswana are HIV positive (Ahmed and Brunborg 1988; Modisaotsile 1995; Rahman 1995). Consistent with the intensive HIV/AIDS awareness campaigns, recent studies suggests that the majority of individuals now believe that condom use and less risky sexual behavior are efficient means to reduce the risk of contracting the HIV virus (Norr, Tlou, and McElmurry 1996; Rao and Letamo 1992). However, as yet many people inaccurately perceive that they are not at risk of contracting the HIV virus. Because Tswana adolescents tend to become sexually active at a relatively young age (Meekers and Ahmed 1997a, 1997b) it is imperative that HIV/AIDS prevention efforts target and efficiently reach adolescents.

Nowadays, premarital sexual activity is common among the Tswana (Solway 1990). Because of western influences and the system of formal education parental control over adolescent sexual behavior has gradually diminished (Letamo 1993: 370; Motshologane 1978: 83-84). Peer pressure promotes adolescent sexual activity (Gulbrandsen 1986:11; Schapera 1971: 38-57, 151), and economic hardship entices many young women to engage in sexual relationships with men who can provide for them (Griffiths 1990: 5-6). Recent research shows that the majority of both male and female Tswana are sexually active before reaching age 17, and that it is common among both young males and females to have irregular sexual partners (Meekers and Ahmed 1997). Considering the early initiation of sexual activity among Tswana adolescents and the relatively high incidence of risky sexual practices, there is an urgent need for HIV/AIDS information, education, and communication programs that target adolescents, and for research that will help improve the efficiency of such programs.

The purpose of this paper is to determine the extent to which a recent adolescent HIV/AIDS social marketing intervention in Botswana has affected adolescents' beliefs regarding AIDS and preventive behavior, and to help make specific recommendations for enhancing program effectiveness.

The Tsa Banana Adolescent Reproductive Health Program

Until recently many Tswana adolescents believed that reproductive health services were not intended for adolescents but rather for others, and many adolescents reported being intimidated by clinics and clinic staff. Such attitudes are problematic given the high and increasing incidence of adolescent reproductive health problems, including pregnancy and infection with the HIV virus and other sexually transmitted diseases (for details, see Botswana Social Marketing Program 1996; Population Services International 1996). The Tsa Banana program was designed to help persuade young Tswana that reproductive health services exist not only for other people but also for adolescents and that they should use them. The Setswana expression 'Tsa Banana' means 'for youth.' The program was funded by the U.S.A.I.D. Botswana Population Sector Assistance Project, and was implemented by the Botswana Social Marketing Program/Population Services International. The core of the program consists of identifying, developing, and promoting reproductive health information, products, and outlets that are youth-friendly.

The project, which was implemented in Lobatse from March 1995 through March 1996, was mainly comprised of 1) a communications campaign, which included radio messages, printed media, information campaigns directed toward parents, teachers and youth-community leaders, 2) youth-oriented social marketing of condoms, including teen-oriented inserts in magazines, 3) community outreach, for example through peer sales educators (see Ellis 1995), and 4) development of adolescent-friendly outlets. To achieve the latter, retail outlets that agreed

to participate in the program were given a Tsa Banana sign that thereby identified them as adolescent-friendly, and representatives from these outlets attended a workshop on adolescent reproductive health counseling. Participating retail outlets would offer advice to adolescents, and would recommend that they visit a Tsa Banana clinic to obtain more detailed information. These Tsa Banana clinics comprised Ministry of Health Clinics where the health workers had received appropriate training; such clinics would also display the Tsa Banana poster indicating that they are youth-friendly. Team members conducted follow-up visits with these adolescent-friendly outlets throughout the project's life-span.

In addition to developing this Tsa Banana referral network, the program provided teenagers with information that encourage less risky sexual behavior. The main message provided was A.B.C., which stands for "Abstain, Be faithful, and Condomize." Peer educators taught adolescents negotiation skills such as refusing sex or requesting the use of a condom during sex. Condom demonstrations were held to instruct adolescents about the correct use of condoms. The Tsa Banana program also provided peer education sessions in primary and secondary schools. In secondary school the education sessions targeted all students and addressed topics related to AIDS, HIV transmission, teen pregnancy, and condoms. In primary schools, the education sessions targeted only those aged 13 and older, and provided mainly information concerning puberty and encouraged abstinence.

Conceptual Framework

The large body of research on health behavior describes several different conceptual frameworks that can be useful for guiding discussions about preventive health behavior. One such framework is the Health Belief Model (HBM).¹ The Health Belief model posits that

¹ Alternative models of health behavior include social learning theory (Bandura 1977), the theory of reasoned action (Ajzen-Fishbein 1980) and the pre-adult health decision-making model

individuals' health behavior is affected by their beliefs about 1) the seriousness of the health threat (perceived severity), 2) the vulnerability to the health threat (perceived susceptibility), 3) the effectiveness of protective measures (perceived benefits), 4) the negative implications of taking protective action (perceived barriers), and 5) a trigger which leads individuals to act on these beliefs (Becker 1974; Janz and Becker 1984; Gielen et al. 1994; Wilson et al. 1990).

The Health Belief Model has been applied in studies on a wide range of health behaviors. While it has been suggested that the most successful applications of the Health Belief Model have focused on diseases that involved a less severe health threat than AIDS and that required less complex preventive action than safer sex practices (Montgomery et al. 1989), several recent studies have found the health belief model useful for studying protective sexual behavior and for predicting safer sex intentions (Gielen et al. 1994; Petosa and Jackson 1991).

The Health Belief Model can also help enhance our understanding of the intended and unintended consequences of various health education efforts designed to help combat the HIV/AIDS epidemic (Allard 1989: 451). As noted elsewhere, the Health Belief Model is a particularly suitable framework for intervention design and improvement because it can disentangle the effectiveness of various clearly identifiable components of a program:

One advantage of using the HBM in assessing educational needs is the direct implications it holds for intervention design. Each component of the HBM is potentially modifiable using traditional health education strategies [...] Using the HBM to assess HIV education needs can provide a profile of [...] beliefs, which would be helpful in designing relevant and efficient interventions (Petosa and Jackson 1991: 465).

In this paper, we examine to what extent each of the components outlined in the Health Belief Model have been affected by an HIV/AIDS intervention conducted as part of an adolescent reproductive health program in Botswana.

(Langer and Warheit 1992).

Data and Methods

This paper is based on survey data collected as part of the Botswana Tsa Banana Adolescent Reproductive Health program conducted by The Botswana Social Marketing Program/Population Services International. The data were collected using a quasi-experimental control group research design, with a pre-intervention and post-intervention survey conducted in both the intervention location and a comparison location. The Tsa Banana intervention was implemented in Lobatse, and Francistown was selected as the location. Francistown and Lobatse are similar in many respects, particularly regarding their predominant Tswana ethnic composition, degree of urbanization, patterns of in-migration, and access to government and other AIDS-prevention services. Both towns have been targeted by the National AIDS Control Programme (NACP), have ongoing NGO AIDS activities, and are affected by the nationwide condom sales and promotion program known as the Botswana Social Marketing Programme (Population Services International 1996). Recent research shows that Lobatse and Francistown have similar levels of HIV infection, with roughly 40 percent of women attending ante-natal clinics testing positive for the HIV virus (Botswana Social Marketing Program 1996).

The first round of the Botswana Adolescent Reproductive Health Surveys was conducted by the Social Impact Assessment and Policy Analysis Corporation (SIAPAC-Africa) in mid-1994; the second round was conducted in October 1995 (roughly 8 months after the implementation of the project). The pre-intervention survey contains reproductive health and HIV/AIDS-related information for a random sample of 1,002 adolescent males and females (ages 13-18) who were living in the towns of Lobatse (intervention) or Francistown (comparison) at the time of the survey. The post-intervention survey contains identical information for a sample of 2,396 adolescents, but adds a number of questions about exposure to the intervention. The characteristics of the survey respondents are shown in Table 1.

The results presented in Table 1 show that the pre-and post-intervention samples in both locations have nearly identical sex ratios. In the comparison location, respondents are roughly equally distributed between the younger and older age-groups. In the intervention location, the post-intervention sample has a younger age distribution than the pre-intervention sample (with 46 and 59 percent aged 13-15 respectively). Consistent with Botswana's rapid educational expansion (see Central Statistics Office 1995; Lebura-Sianga 1995; Meekers and Ahmed 1997a; Seisa and Youngman 1993; Weeks 1993), Table 1 confirms that about half of all adolescents in the samples have secondary level education, and more than two thirds of respondents were enrolled in school at the time of the survey. Consistent with the literature on the Tswana, two thirds of adolescents lived in a female-headed household (see also Belbase and Kimani 1995; Brown 1980; Kalogosho 1995; Timaeus and Graham 1989).

Table 1 about here

Many existing studies measure each component of the health belief model using a composite index (i.e. a scale) based on a battery of indicators (Allard 1989; Petosa and Jackson 1991; Simon and Das 1984). While using a single composite index for each type of health beliefs is useful for determining their relative importance, for programmatic purposes it may be necessary to have more detail about beliefs regarding perceived intervention benefits and regarding barriers to program acceptance. For example, for programmatic purposes it is not sufficient to know that perceived barriers to condom use constrain program effectiveness. Rather, it is necessary to identify which specific misconceptions and barriers need to be overcome to improve program effectiveness. Consequently, when health beliefs are studied in the context of program evaluation and enhancement, it is preferable to separately examine several single-item measures, rather than a summary scale. With this in mind, we use the following variables to measure each of the health belief model components:

Perceived Severity/Curability. To measure the perceived severity of the HIV/AIDS crisis we

use information on the respondent's knowledge of the fact that AIDS is not curable, as measured by a dummy variable indicating whether or not a respondent disagrees with the statement that AIDS can be cured by medical doctors.

Perceived Susceptibility. The indicator of the perceived susceptibility to HIV/AIDS used here is a dummy variable indicating whether or not the respondent said that contracting AIDS is one of the risks of being sexually active. This indicator is derived from a question asking respondents whether they think that sexually active persons face any risks, and if so, to name three of those risks (with AIDS being one of the pre-coded answer categories).

Perceived Benefits of Preventive Behavior: Condom Use. Because HIV/AIDS can be avoided through changes in sexual behavior as well as through increased condom use, we use separate indicators of the perceived benefits. The perceived benefits of condom use are measured by a dummy variable indicating that the respondent believes that people reduce sexual risks by using condoms.

Perceived Benefits of Preventive Behavior: Less Risky Sexual Behavior. The perceived benefits of changing sexual behavior are measured by a dummy variable that equals one if the respondent believes that people reduce sexual risks by avoiding casual sex situations, zero otherwise, and by a second dummy variable indicating whether or not respondents believe that people deal with sexual risks by abstaining from sex.

Perceived Barriers to Use of Preventive Measures: Condom Use. These indicators include dummy variables indicating whether or not the respondent agrees with the following statements 1) if a partner refuses to use a condom it is difficult to convince him or her, 2) a woman would lose a man's respect if she initiated condom use, 3) I am shy to purchase condoms where others might see me, even if I do not know them, and 4) very

few of my friends use condoms.

Perceived Barriers to Use of Preventive Measures: Less Risky Sexual Behavior. The perceived barriers to reducing risky sexual behavior are measured by dummy variables indicating whether or not the respondent believes that being sexual active is a good thing because it 1) gives pleasure, 2) increases one's status with peers, or is considered an indication of maturity, or 3) may lead to marriage. Such beliefs may dissuade adolescents from abstaining from sexual intercourse or from reducing their number of sexual partners.

This paper describes pre-and post-intervention trends in these health beliefs among male and female adolescents in the intervention location (Lobatse) and compares them with the corresponding trends in the comparison location (Francistown). The dependent variables are dummy variables indicating whether or not the respondent expressed the relevant health belief. We use logistic regression analyses to evaluate the net change over time in each of the health beliefs, after controlling for school enrollment, level of education, and the respondent's age. The odds ratio's for the trends in health beliefs, express the odds that respondents interviewed at the end of the intervention period expressed the relevant health belief, relative to the odds that respondents interviewed at the beginning of the intervention period expressed this belief. Separate logistic regression analyses are conducted for male and females in the intervention and comparison locations.

Results

Exposure to the Tsa Banana Program

The extent to which respondents have been exposed to the Tsa Banana program is shown in Table 2. Because the Tsa Banana program was conducted in Lobatse only, the data shown are restricted to the 1995 Lobatse sample. The results show that 68 percent of female and 71 percent of male adolescents had heard of the Tsa Banana Program. The majority of respondents (59 percent of females and 64 percent of males) had been exposed to Tsa Banana promotional items such as T-shirts, stickers, and pamphlets. Over 20 percent of adolescent had heard about or seen a Tsa Banana condom demonstration. Interestingly, males and females had approximately equal knowledge of the condom demonstrations. Nearly one in five females (19 percent) had heard about or seen the Tsa Banana launch, as opposed to only nine percent of male adolescents. The project launch consisted of an outdoor ceremony for community leaders and project donors, and a large promotional show that included performances by rap groups, dances and drama, as well as self-protection messages and the introduction of the project logo. Only a small fraction of adolescents have heard about the Tsa Banana radio interviews and/or radio advertisements. The latter was expected since radio was used mainly to advertise program-related events, rather than to provide information about the program itself.

Table 2 further shows that 41 percent of female and 33 percent of male adolescents were directly involved in Tsa Banana activities (including low-involvement activities such as wearing Tsa Banana T-shirts). Interestingly, eleven percent of females, but only four percent of males had participated in Tsa Banana education sessions. As expected, males are more likely than females to have participated in condom demonstrations. Nevertheless, about one out of every nine female adolescents (12 percent) participated in such a demonstration.

Trends in Perceived Severity

We now examine trends in health beliefs among male and female adolescents in the intervention and control locations. Figure 1 shows the percentage of respondents who disagree with the statement that AIDS can be cured by modern doctors. The results show that the majority of adolescents in both Francistown and Lobatse are aware that AIDS is not curable. At the beginning of the intervention period roughly 70 percent of females were aware that AIDS cannot be cured. This percentage increased to 85 percent in the intervention location, but remained virtually unchanged in the comparison location. Among males roughly two out of every three adolescents know that AIDS cannot be cured, and this percentage did not change noticeably in either location.

The finding that awareness improved considerably among females in the intervention location, but not in the comparison location, suggests that the change in the perceived severity of AIDS among female adolescents can be attributed to the intervention. Neither the Tsa Banana program nor any other intervention appear to have significantly increased perceptions of the severity of the AIDS problem among adolescent males.

Figure 1 about here

Trends in Perceived Susceptibility

Although awareness that AIDS is not curable is widespread, adolescents may not believe that sexually active persons are at risk of contracting the HIV/AIDS virus. Figure 2 shows the percentage of adolescents who do believe that sexually active persons risk contracting the HIV/AIDS virus. Among female adolescents interviewed at the beginning of the intervention period, less than six out of every ten respondents in both the control and intervention location believed that sexually active persons were at risk. There was no change in this belief in either location.

Among male adolescents, on the other hand, there was a very pronounced increase in the percentage who believe that sexually active people risk getting infected with the HIV virus. By 1995, over 80 percent of males in both locations reported believing that sexual activity involved risk of HIV infection. Since the latter change occurred both in the intervention and comparison location, it probably stems from the nationwide promotion of Lover's Plus condoms by Population Services International-Botswana, and from national AIDS prevention efforts by the government or other NGOs. It is noteworthy, however, that these interventions were not successful in increasing perceived susceptibility among adolescent females.

Figure 2 about here

Trends in Perceived Benefits of Protective Behaviors

The percentage of respondents who believe that people avoid sexual risks by using condoms is shown in Figure 3. The results presented in Figure 3 show that knowledge of the fact that condoms are an effective means of avoiding sexual risks is very good among Tswana adolescents. At the beginning of the intervention period, roughly eight out of every ten female adolescents believed that people avoid sexual risks by using condoms. In the intervention location, Lobatse, this figure increased to over 90 percent, but there was no corresponding change in the comparison location. These improvements are consistent with the Tsa Banana efforts to promote use of social marketing brand condoms. About 80 percent of male adolescents in both the intervention and comparison location believed that condom use can help avoid sexual risks, but unlike the case for females in Lobatse, for males this percentage changed only slightly over time.

Figure 3 about here

Figure 4 shows the percentage of adolescents who think people handle sexual risks by abstaining from sexual intercourse. Among females, one out of every three respondents believed that people use abstinence to handle sexual risks. This percentage increase to over 40 percent in the

intervention location, while no noticeable change occurred in the comparison location. Once again, the pattern for males is very different from that for females. At the start of the intervention period, only about one in fifteen male adolescents believed that people use abstinence to handle sexual risks. This percentage increased rapidly, and by 1995, one out of every two males in both locations believed that people use abstinence to handle sexual risks.

These findings suggest that general HIV/AIDS programs are successful in making males aware that their risk of contracting HIV/AIDS can be reduced by abstaining from sexual intercourse. Females already had comparatively high levels of awareness at the beginning of the intervention period, and awareness improved only for the intervention location, suggesting that the Tsa Banana program may have been more effective than national HIV/AIDS programs in reaching young females.

Figure 4 about here

The percentage of adolescents who believe that people avoid sexual risks by not having casual sex or sticking to one partner is shown in Figure 5. The results indicate that very few adolescents believe that avoiding casual sex is a common way to reduce sexual risks, and among females the percentage recognizing the benefits of not engaging in casual sex appears to decline.

Figure 5 about here

Trends in Perceived Barriers to Use Protective Behavior

We now examine potential obstacles to condom use. Figure 6 shows the percentage of adolescents who agree with the statement that if a partner refuses to use a condom it is difficult to convince him or her to do so anyway. Among females, the percentage of adolescents indicating that it is difficult to convince an unwilling partner to use a condom has declined from over fifty percent to less than forty percent, but in the intervention location the decline was much smaller. For males, the intervention had a much more pronounced effect. The percentage of males who indicated that it

would be difficult to convince an unwilling partner increased somewhat in the comparison location, but decreased in the intervention location.

Figure 6 about here

Respondents' attitudes regarding the acceptability of female-initiated condom use is shown in Figure 7. Overall, less than three out of every ten female adolescents believe that women would lose the respect of their male partner if they were to initiate condom use. At the beginning of the intervention period, there were no discernible differences in female opinions regarding barriers to female-initiated condom use between the comparison and intervention location populations. Unexpectedly, results for female adolescents indicate that female barriers to female-initiated condom use may have increased somewhat during the period of observation, both in the intervention and comparison location. Males start off having nearly identical opinions about female initiated condom use, but the percentage does not vary much over time.

Figure 7 about here

Shyness is another potential obstacle to condom use. Figure 8 shows the percentage of adolescents who agree with the statement that they would be shy to purchase condoms in a place where others may see them, even if they do not know them. At the start of the intervention, the percentage of female respondents admitting they would be shy to buy a condom in a public place was quite low, particularly for women in the control location. Unexpectedly, the results show that the percentage of females who said they would be shy to buy condoms in public increased sharply during the intervention period. In the comparison location, the percentage of female who are shy increased from 28 percent to 55 percent, and in the intervention location, there was a corresponding (but smaller) increase from 38 percent to 50 percent.

Interestingly, the percentage of males indicating they would be shy to buy a condom in a public place was not much lower than those for female adolescents. This pattern occurred both in the intervention and comparison location. Among males, an increase in reported shyness occurred

only in the comparison location. These increases in shyness about condom purchase are counterintuitive, given that HIV/AIDS prevention programs typically promote condom use. One possible explanation for this unanticipated trend is that HIV/AIDS programs' efforts to discourage sexual activity, especially promiscuous sexual behavior, also stigmatizes sexual activity.

Figure 8 about here

Figure 9 shows the percentage of adolescents who report being shy to obtain condoms from a health worker. The results show that roughly one third of female adolescents say that they would be shy to get condoms from a health worker; for females there is relatively little difference between the two locations, nor is there a consistent change over time. At the beginning of the intervention period males appeared to be less shy than females, but by the end of the intervention period the percentage of male adolescents who would be shy to obtain a condom from a health worker had increased to levels comparable to those for females.

Figure 9 about here

Whether adolescents will use condoms may also depend on their perceptions of their peers' behavior. Figure 10 shows the percentage of male and female adolescents who indicate that they believe that few of their friends use condoms. In 1994, the start of the intervention period, roughly four out of every ten females in both locations believed that their friends were using condoms. During the intervention period, the percentage of females who believed that their friends were using condoms increased considerably, to over 50 percent in both the comparison and intervention location. For male adolescents, on the other hand, a very different trend emerges. In both locations, there is a very dramatic decline in the percentage of males who believe that their friends are using condoms over the length of the intervention period. The finding is counterintuitive, but is consistent with the earlier findings (see Figure 4) that there has been a very large increase in the percentage of males who believe that people abstain from sexual intercourse in order to avoid sexual risks.

Figure 10 about here

We now turn to attitudes regarding sexual activity that may act as a barriers to safer sexual behavior. Figure 11 shows the percentage of female and male adolescents who believe that sexual activity is good because it gives pleasure. Because such beliefs encourage sexual activity, they may act as barriers to programs promoting sexual abstinence and monogamy. Among females, the percentage who indicate that being sexually active is good because it gives pleasure is very low and changed little over time in either location. For males, the percentage indicating that sexual activity is a good thing because it gives pleasure is higher than for females, but has declined in both the intervention and comparison location.

Figure 11 about here

Figure 12 shows the percentage of adolescents who believe being sexually active is good because it increases one's maturity or one's status with peers. Few female adolescents believe that sexual activity is good because it enhances ones status, and there are no indications of any change over time. Among male adolescents, on the other hand, the percentage who believe that sex is good because it increases one's status has increased during the intervention period. While this increase occurred in both locations, it is particularly strong in the intervention location.

Figure 12 about here

The belief that sexual activity can lead to marriage is another potential barrier that may prevent adolescents from reducing risky patterns of sexual behavior. The percentage of adolescents who believe that being sexually active is beneficial because it can lead to marriage is shown in Figure 13. Very few females believe that the prospect of marriage is one of the good things about being sexually active, and in the intervention location this belief practically disappeared completely. Among males in both locations, the belief that sexual activity is good because it may lead to marriage was completely abandoned by the end of the intervention period.

Figure 13 about here

The Impact of the Tsa Banana Program on Health Beliefs

Next, we examine if the observed trends in health beliefs in the intervention and comparison location persist after controlling for other factors. Table 3 shows the odds of expressing each health belief at the end of the intervention period relative to the beginning of the intervention period, after controlling for the respondent's school enrollment, level of education, and age. An odds ratio larger than unity indicates that the health belief has become more common during the intervention period, while an odds ratio less than one shows that the health belief has become less important during the intervention period. The results presented in the first panel of Table 3 show that male beliefs regarding the incurability of AIDS did not change significantly in either the comparison or intervention location. For females a different pattern emerges. At the end of the intervention period, females in Lobatse are 2.7 times as likely to believe that AIDS cannot be cured than was the case at the beginning of the intervention, after controlling for other factors, while there was no significant change in the comparison location.

Table 3 about here

The second panel in Table 3 shows trends in beliefs regarding the risk of contracting AIDS. The results show that female beliefs about the risk of contracting AIDS did not change for either location. However, male respondents interviewed at the end of the intervention were roughly three times as likely as those interviewed before the intervention to believe that sexually active people risk contracting the HIV virus. This trend occurs in both the intervention and comparison location.

The next panel in Table 3 shows beliefs regarding the benefits of condom use. For females, no significant change occurred in the comparison location, but in the intervention location females interviewed at the end of the intervention period were 3.4 times as likely as those interviewed at the beginning of the intervention to believe that people use condom to avoid sexual risks. For males,

the pattern is similar, with no significant change in the comparison location, and a 1.4-fold increase ($p < .10$) in the odds of believing that people use condom to avoid sexual risks in the intervention location.

Data regarding beliefs about the benefits of sexual abstinence show that among males in both locations the odds of believing that people abstain from sex to avoid sexual risks increased five-fold during the intervention period. At the end of the intervention period, females in the intervention location were 1.6 times as likely than at the beginning of the intervention period to believe that people use abstinence to deal with sexual risks; this change did not occur in the comparison location. The finding that this effect is so strong for males (but not females) is somewhat surprising, but may indicate that women increasingly postpone first sexual intercourse, thereby making it increasingly difficult for young men to find a sexual partner. Beliefs that people avoid casual relationships and multiple sexual partners to limit sexual risks decreased significantly for females in both locations, but there was no corresponding change for males. This finding is unanticipated, but may reflect that HIV/AIDS programs make females increasingly aware that male promiscuity is an important HIV/AIDS risk factor.

Table 3 further shows trends in barriers to condom use. Beliefs that it is difficult to convince a partner who is unwilling to use condoms declined significantly among females in the comparison location. This finding is consistent with the earlier finding that males in Francistown increasingly believe that sexually active people risk contracting AIDS. Beliefs that it is difficult to convince a partner to use condoms also declined among males in the intervention location. This decline is consistent with the significant increase in females believing that people use condoms to avoid sexual risks discussed earlier. Unexpectedly, beliefs that women who initiate condom use will lose respect with their partner increased significantly among women in both the intervention and comparison locations. This finding suggests that adolescent women, but not men, increasingly associate condom use with irresponsible sexual behavior.

Despite widespread promotion of condom use, both by the Tsa Banana and other HIV/AIDS programs, there is a significant increase the likelihood that respondents will be shy to purchase condoms in a public place. The increase in shyness can be observed for females in both locations, as well as for males in the comparison location. Only for males in the intervention there is a decline in shyness about buying condoms in a public place. On the other hand, shyness about obtaining condoms from a health worker only increased for males in the comparison location.

If condom promotion programs are successful, one would expect that adolescents increasingly believe that their peers are using condoms. The results presented in Table 3 shows that females in both locations increasingly believe that few of their friends use condoms, while males in both locations increasingly believe that many of their friends use condoms.

Finally, we examine trends in obstacles that may discourage adolescents from engaging in less risky sexual practices. Table 3 shows that the belief that sexual activity is advantageous because it gives pleasure is declining somewhat, although this trend is only significant for males in Francistown. Beliefs that sexual activity is good because it can lead to marriage, dramatically declined among all groups, with the sole exception of females in the comparison location. One unanticipated trend, is the strong increase in the belief among male adolescents in both the intervention and comparison location that sexual activity increases one's status with peers.

Discussion

In Botswana, as in many countries, the HIV/AIDS crisis is hitting hard. At present, prevention is the only viable option to contain the spread of the HIV virus. Because adolescents tend to become sexually active an early age, it is important for HIV intervention programs to target very young adolescents, preferably before they become sexually active, or shortly thereafter when their sexual and protective practices may still be amenable to change.

With the above in mind, an adolescent reproductive health program, the so-called Tsa Banana ('for youth') program, was implemented by the Botswana Social Marketing Company. This program was designed to inform adolescents about HIV/AIDS and related issues, and to persuade sexually active young adults to protect themselves by making adequate use of reproductive health services.

This paper has evaluated the impact of the Tsa Banana adolescent reproductive health program on adolescents' beliefs regarding the curability of AIDS, the risk that sexually active persons contract AIDS, the benefits of condom use and less risky sexual behavior, and their beliefs regarding the barriers to condom use and less risky sexual behavior. The descriptive and multivariate analyses reveal a number of important findings. Table 4 summarizes the significant changes in AIDS-related beliefs among adolescents in the intervention and comparison locations.

Table 4 about here

Table 4 shows that some desired changes in AIDS-related beliefs occurred among males in both the intervention and comparison location., suggesting that communications activities (mostly the nationwide condom sales and promotion campaign by the Botswana Social Marketing Programme) and media attention are having an effect on this group. Males are more likely to believe that sexually active people are at risk of HIV/AIDS and that one of the ways that people reduce risk is to abstain from sexual activity; they are less likely to believe that few of their friends use condoms and that sex is good because it can lead to marriage.

There is evidence of overall positive effects of the Tsa Banana program (see Table 4). More desired changes occurred in the intervention location than in the comparison location (among both females and males) and there were fewer undesired changes in the intervention location (among males). A significant positive change among both males and females that was unique to the intervention location was an increased belief that people use condoms to avoid sexual risks. Also unique to the Lobatse was a reduced belief among males that it is hard to convince a partner to use condoms, reduced belief among females that sex is good because it leads to marriage, and increases among females in the beliefs that AIDS cannot be cured and that people may abstain from sex to avoid sexual risks. The Tsa Banana program may have been instrumental in countering the increased tendency of males in the comparison community to feel shy about purchasing condoms (but not among females). The fact that these positive changes had all been achieved within the first eight months of the intervention testifies to the success of the Tsa Banana program.

Nevertheless, there is also evidence of undesired changes in beliefs that the Tsa Banana program was at best unable to counter effectively, at least within the short time frame under study. Most notably, females in both comparison and intervention locations were more likely to feel shy about purchasing condoms in public, to believe that women lose respect if they initiate condom use, and to believe that few of their friends use condoms. There is no evidence of undesirable changes that are unique to the intervention location.

The results presented in this paper highlight the complexity of the factors that affect program impact. Table 4 shows that males and females differ, both in their responses to the Tsa Banana campaign and in secular trends. For example, in both the intervention and comparison location the belief that few of the respondents friends use condoms increased significantly for females, but decreased significantly for males. As noted above, Tsa Banana may have countered a trend towards increasing shyness in purchasing condoms among males, but not among females.

Much work remains to be done in this field, and new challenges may be ahead, some of which had not been anticipated. This research shows that intervention programs may simultaneously produce a number of desirable and undesirable changes. For example, the evidence indicating that adolescents are increasingly shy to purchase condoms, and that females believe that they would lose respect if they would initiate condom use, suggests that the stigma associated with condom use is increasing rather than decreasing. Increasing awareness that condoms protect against sexual risks involved in having casual and/or multiple partners may simultaneously tend to stigmatize condoms, through the association with high-risk behavior, even as it increases the perception of benefits that accrue from using them.

This study demonstrates the need for sophistication and complexity in the design and evaluation of AIDS prevention condom social marketing programs:

- a) Communications and promotional activities should be designed separately for male and female audiences.
- b) In designing communications and promotional interventions, program managers should be alert to the possibility that interventions may simultaneously have positive and undesirable consequences, especially for different audience segments, but perhaps even for the same audience segment.
- c) Efforts to evaluate the effectiveness of behavior change communications, including condom social marketing, should be designed such that they may detect and analyze changes and potential causal relationships in a behavior change model at multiple stages, and
- d) AIDS prevention programs should recognize the conflict between encouraging awareness of individual risks from unsafe sexual practices on the one hand, and de-stigmatizing condom use on the other. This is a challenge that will require considerable creativity and ingenuity in designing communications strategies.

References

- Ahmed, G. and H. Brunborg. 1988. Knowledge, attitudes, prevalence and prospects of AIDS in Botswana. Paper presented at the Annual Meeting of the Population Association of America, held in New Orleans, Louisiana, April 21-23, 1988.
- Ajzen, I. And M. Fishbein. 1980. Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.
- Allard, Robert. 1989. Beliefs about AIDS as determinants of preventive practices and of support for coercive measures. *American Journal of Public Health* 79(4): 448-452.
- Bandura, A. 1977. Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.
- Becker, M. 1974. The health belief model and personal health behavior. *Health Education Monographs* 2: 236-473.
- Belbase, Krishna P. and Samuel Kimani. 1995. Variations in Socio-Economic Indicators in Botswana: A second-stage analysis of 1991 Census Data. Paper presented at the 1991 Census Dissemination Seminar, held in Gaborone, 1-4 May, 1995.
- Botswana Social Marketing Program. 1996. Adolescent Reproductive Health in Urban Botswana. Quantitative evaluation of the Tsa Banana project. Gaborone: SIAPAC-Africa, for Population Services International, The Botswana Social Marketing Program.
- Brown, Barbara. 1980. Women, Migrant Labor and Social Change in Botswana. African Studies Working Paper 41. Boston: Boston University.
- Central Statistics Office. 1995. Education Statistics 1993. Gaborone: Central Statistics Office.
- Eisen, M., G. Zellman, A. McAlister. 1985. A health belief model approach to adolescents' fertility control: Some pilot program findings. *Health Education Quarterly* 12: 185-210.
- Ellis, S. 1995. A day in my life as a peer-educator. Botswana. *Planned Parenthood Challenges* (1): 35-36.
- Gielen, Andrea Carlson, Ruth R. Faden, Patricia O'Campo, Nancy Kass, and Jean Anderson. 1994. Women's protective sexual behaviors: A test of the health belief model. *AIDS Education and Prevention* 6(1): 1-11.
- Griffiths, Anne. 1990. Negotiating pregnancy: Women's strategies concerning marriage and compensation among the Kwena in Botswana. *Centre of African Studies Occasional Papers* 27. Edinburgh: Edinburgh University.
- Gulbrandsen, O. 1986. To marry, or not to marry: Marital strategies and sexual relations in a Tswana society. *Ethnos* 51(1-2): 7-28.
- Janz, Nancy K. And Marshall H. Becker. 1984. The Health Belief Model: A Decade Later. *Health Education Quarterly* 11: 1-47.

- Kalogosho, Demetria. 1995. Household headship and educational status by gender. Paper presented at the 1991 Census Dissemination Seminar, held in Gaborone, 1-4 May, 1995.
- Langer, Lily M. and George J. Warheit. 1992. The pre-adult health decision-making model: Linking decision-making directedness/orientation to adolescent health-related attitudes and behavior. *Adolescence* 27(108): 919-948.
- Leburu-Sianga, Felicity Malebogo. 1995. Review of educational achievements in Botswana education, 1971-1991. Paper presented at the 1991 Census Dissemination Seminar, held in Gaborone, 1-4 May, 1995.
- Letamo, Gobopamang. 1993. Modernization and premarital dyadic formations in Botswana. Pp. 369-379 in *Proceedings of the International Population Conference, Montreal, volume 1*. Liège: International Union for the Scientific Study of Population (IUSSP).
- Meekers, Dominique and Ghyasuddin Ahmed. 1997. Pregnancy-Related School Dropouts in Botswana. PSI Research Division Working Paper 1. Washington D. C.: Population Services International.
- Meekers, Dominique and Ghyasuddin Ahmed. 1997. Adolescent sexuality in Southern Africa: Cultural Norms and Contemporary Behavior. PSI Research Division Working Paper 2. Washington D. C.: Population Services International.
- Modisaotsile, Innocent Mbo. 1995. HIV/AIDS epidemic in Botswana: The anticipated demographic consequences. Paper presented at the 1991 Census Dissemination Seminar, held in Gaborone, May 1-4, 1995.
- Motshologanse, S. R. 1978. Influence of urbanization on the role and status of husband and wife in the Tswana family. *South African Journal of Sociology* 17: 83-90.
- Montgomery, Susanne B., Jill G. Joseph, Marshall H. Becker, David G. Ostrow, Ronald C. Kessler, and John P. Kirscht. 1989. The Health Belief Model in understanding compliance with preventive recommendations for AIDS: How useful? *AIDS Education and Prevention* 1(4): 303-323.
- Norr, K., S. Tlou, and B. McElmurry. 1996. AIDS awareness and knowledge among Botswana women: implications for prevention programs. *Health Care for Women International* 17:133-148.
- Petosa, Rick and Kirby Jackson. 1991. Using the Health Belief Model to predict safer sex intentions among adolescents. *Health Education Quarterly* 18(4): 463-476.
- Population Services International. 1996. *The Botswana Social Marketing Program: Final Report of Activities*. Gaborone: Botswana Social Marketing Program.
- Rahman, M. 1995. Estimation of the level of HIV/AIDS infection in Botswana. Paper presented at the 1991 Census Dissemination Seminar, held in Gaborone, May 1-4, 1995.

- Rao, K. and G. Letamo. 1992. Knowledge and perception of AIDS in Africa: a case study of Botswana. Paper presented at the Annual Meeting of the Population Association of America, held in Denver, CO, April 30 - May 2, 1992.
- Schapera, I. 1971. Married life in an African tribe. London: Penguin Books.
- Seisa, Segakweng and Frank Youngman (eds.). 1993. Education for all in Botswana. Proceedings of the national conference on education for all, Gaborone, June 17-21, 1991. Gaborone: Ministry of Education and Macmillan Botswana Publishing.
- Simon, K. and A. Das. 1984. An application of the health belief model toward educational diagnosis for VD education. *Health Education Quarterly* 11: 403-418.
- Solway, Jacqueline S. 1990. Affines and spouses, friends and lovers: The passing of polygyny in Botswana. *Journal of Anthropological Research* 46 (1): 41-66.
- Timaeus, I. and W. Graham. 1989. Labor circulation, marriage and fertility in southern Africa. Pp.365-400 in R. Lesthaeghe, ed., *Production and reproduction in sub-Saharan Africa*. Berkeley: University of California Press.
- Weeks. Sheldon G. 1993. Reforming the reform: Education in Botswana. *Africa Today* 40(1): 49-60.
- Wilson, David, Susu Lavelle, Ruth Greenspan, and Christopher Wilson. Psychological predictors of HIV-preventive behavior among Zimbabwean Students. 1990. *The Journal of Social Psychology* 131(2): 293-295.

Table 1: Percentage Distribution of Sample Respondents, by Socio-Economic Characteristics

	Francistown (Comparison)		Lobatse (Intervention)	
	1994	1995	1994	1995
Gender				
Female	50.9	50.4	49.1	50.7
Male	49.1	49.6	50.9	49.3
Age				
13-15	50.1	50.5	45.6	59.0
16-18	49.9	49.5	54.4	41.0
Education				
None/Primary	50.3	29.9	49.7	53.1
Secondary	49.7	60.1	50.3	46.9
Enrolled in School				
No	29.7	18.3	34.9	29.4
Yes	70.3	81.7	65.1	70.6
Female Headed Household				
No	34.1	34.4	34.7	40.2
Yes	65.9	65.6	65.3	59.8
N of Cases	495	1166	507	1230

Table 2: Percentage of Adolescents Exposed to or Involved in the Tsa Banana Program

	Lobatse 1995 (Intervention)	
	Females	Males
% Heard About or Seen :		
Any Tsa Banana Activity	67.9	71.0
Promotion	58.8	64.0
Radio Interview/Advertisement	3.5	1.5
Condom Demonstration	22.1	24.6
Launch	19.2	8.6
% Having Direct Involvement:		
Any Tsa Banana Activity	40.6	32.5
Visited Tsa Banana Clinic	0.3	1.5
Attended Educational Session	11.1	4.1
Attended Tsa Banana Shop	0.5	4.5
Attended Condom Demonstration	11.5	20.5
N of Cases	624	600

Table 3: Odds Ratio of 1994-95 Time Trends in Health Beliefs in Intervention and Comparison Location

	Females		Males	
	Comparison	Intervention	Comparison	Intervention
Severity				
AIDS cannot be cured	0.940	2.702***	1.152	1.061
Risk				
Risk of Contracting AIDS	0.895	1.147	2.666***	3.209***
Benefits of Condom Use				
Condoms to Avoid Risk	0.772	3.449***	1.157	1.459*
Benefits of Safer Sex				
Abstinence to Avoid Risk	0.890	1.561***	5.726***	5.376***
Monogamy to Avoid Risk	0.211***	0.284***	1.060	1.591
Barriers to Condom Use				
Hard to Convince Partner	0.572***	0.838	1.260	0.681**
Women Initiate Lose Respect	1.903***	1.684***	0.734	1.057
Shy to Buy in Public	3.101***	1.744***	2.240***	0.728*
Shy to Buy from Health Worker	0.801	1.107	1.861***	1.039
Few Friends use Condoms	1.703***	2.181***	0.389***	0.303***
Barriers to Safer Sexual Behavior				
Sex is Good b/c Pleasure	0.660	0.918	0.457***	0.744
Sex is Good b/c Leads to Marriage	1.000	0.213***	0.183***	0.094***
Sex is Good b/c Gives Status	1.688	1.307	2.540*	3.051***

Note: after controlling for being in school, having secondary education, and age. * p<.10; ** p<.05; *** p<.01

Table 4: Desired and Undesired Changes in AIDS-Related Beliefs Among Adolescents in the Intervention and Control Locations

Location	Desired Changes		Undesired Changes	
	Males	Females	Males	Females
Control Only (Francistown)		↓ hard to convince a partner to use condom	↑ shy to buy condoms in public place ↑ shy to obtain condoms from health worker	
Both Control and Intervention	↑ sexually active people risk AIDS ↑ people abstain to avoid risk ↓ few friends use condoms ↓ sex is good b/c leads to marriage		↑ sex is good b/c it enhances status	↓ people avoid casual or multiple partners to reduce risk ↑ few friends use condoms ↑ shy to purchase condoms in public ↑ women lose respect if they initiate condom use
Intervention Only (Lobatse)	↑ people use condoms to avoid risk ↓ hard to convince a partner to use condom	↑ AIDS cannot be cured ↑ people use condoms to avoid risk ↑ people abstain to avoid risk ↓ sex is good b/c lead to marriage		

Note: ↑ indicates a significant increase in the belief during the intervention period
 ↓ indicates a significant decrease in the belief during the intervention period

Fig.1: Percentage of Adolescents Who Believe That AIDS Cannot be Cured by Medical Doctors

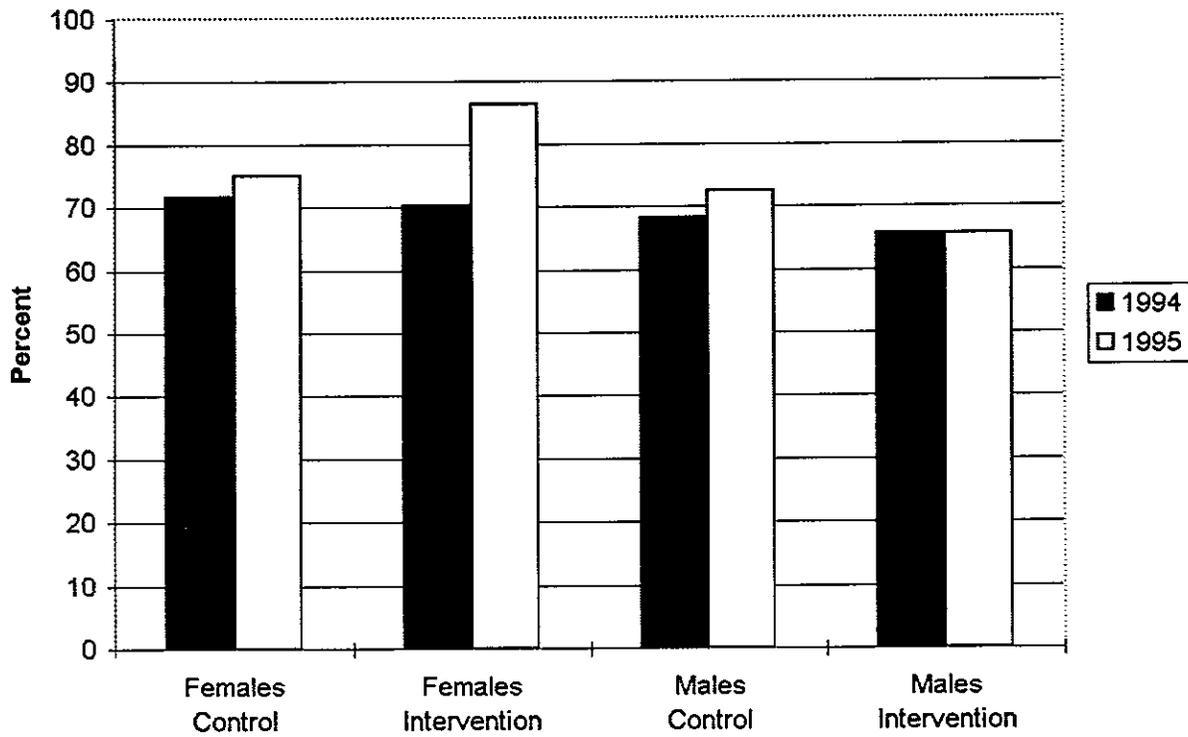


Fig.2: Percentage of Adolescents Who Believe That Sexually Active Persons Risk Contracting AIDS

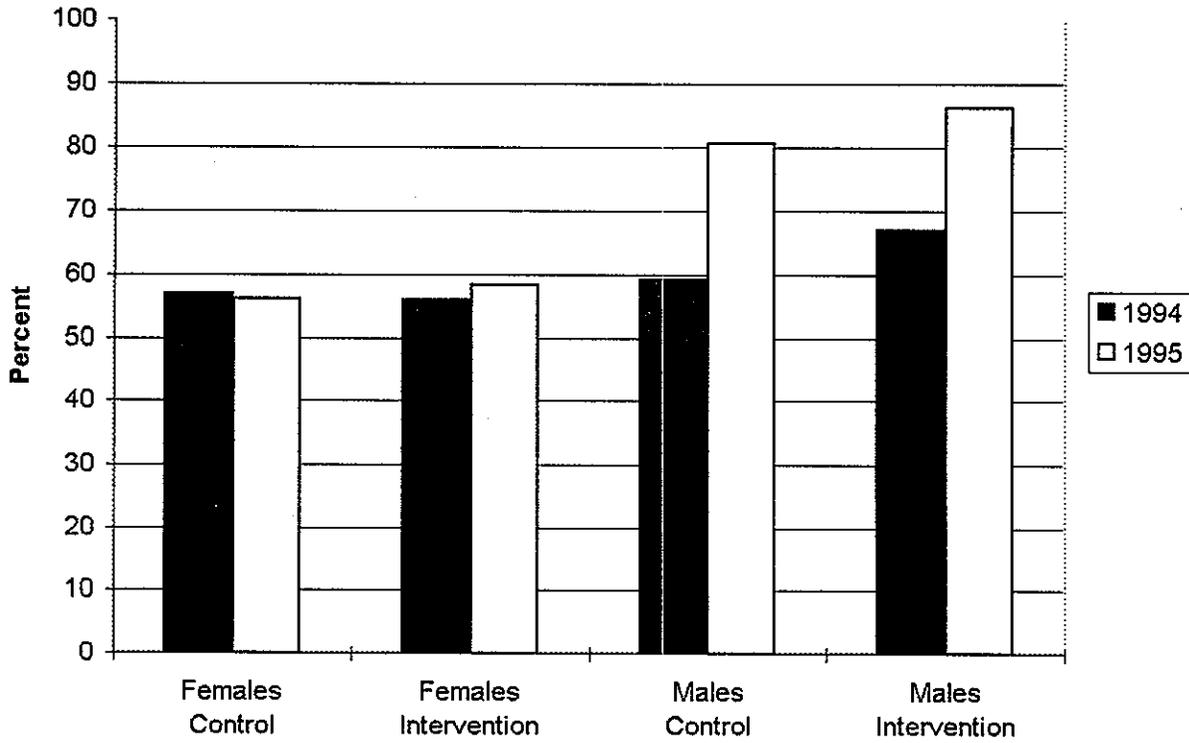


Fig.3: Percentage of Adolescents Who Believe That Sexual Risks Can be Avoided by Using Condoms

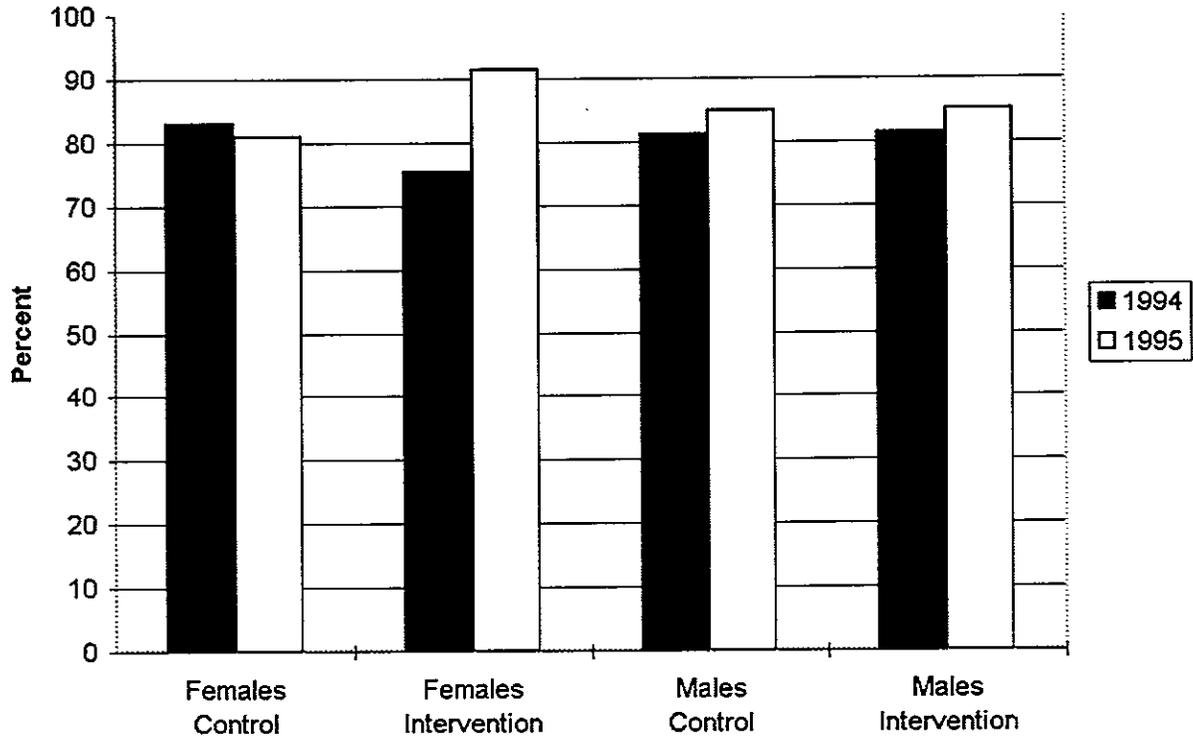


Fig.4: Percentage of Adolescents Who Believe That Sexual Risks Can be Avoided Through Abstinence

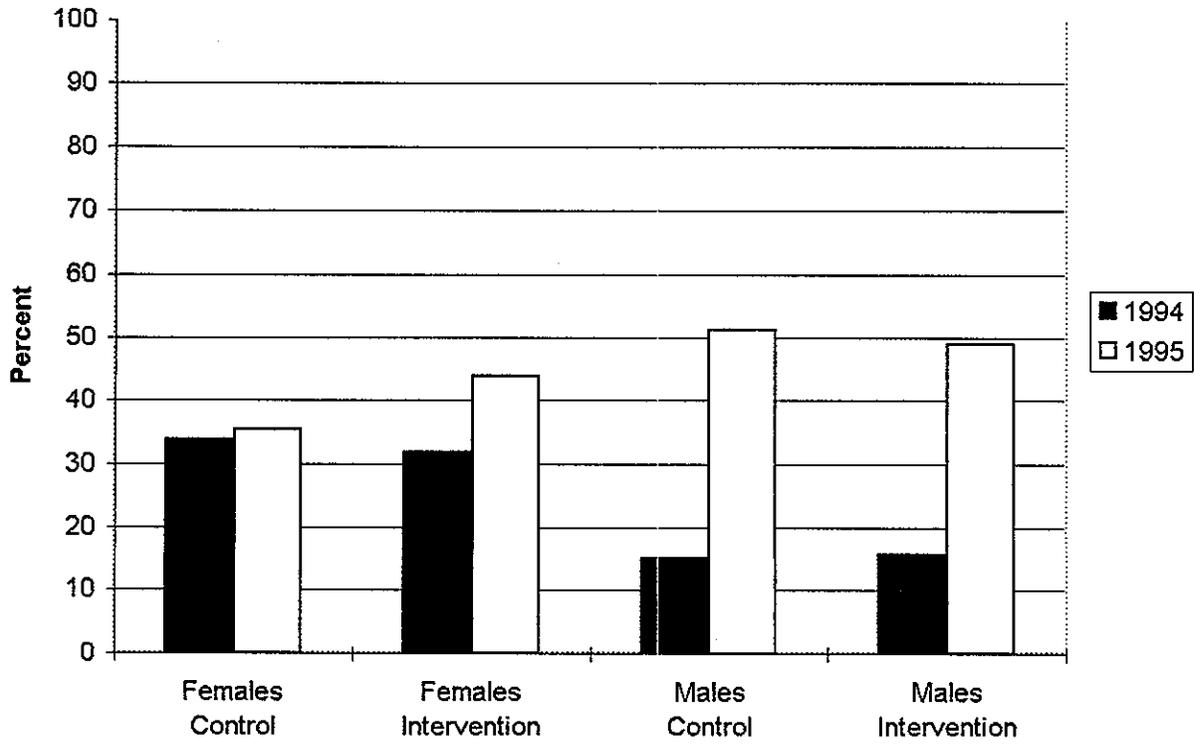


Fig.5: Percentage of Adolescents Who Believe That Sexual Risks Can be Avoided by Not Having Casual Sex

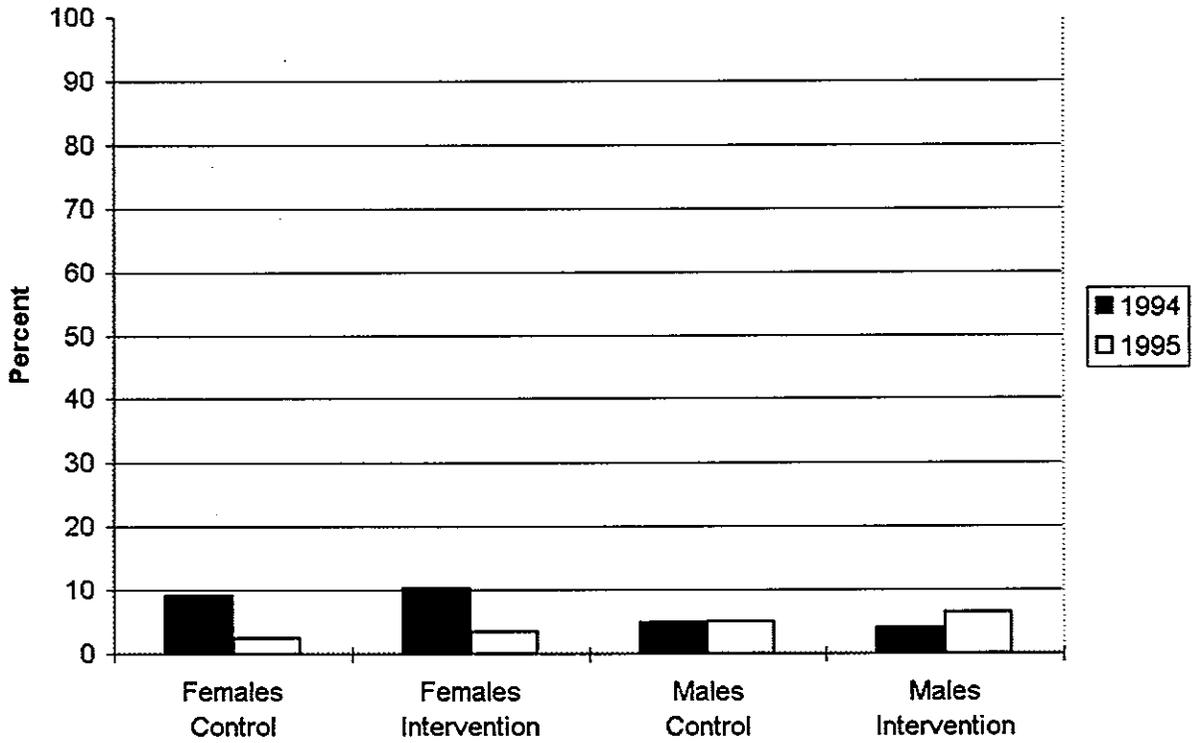


Fig.6: Percentage of Adolescents Who Agree That it is Difficult to Convince a Partner Who Does Not Want to Use Condoms

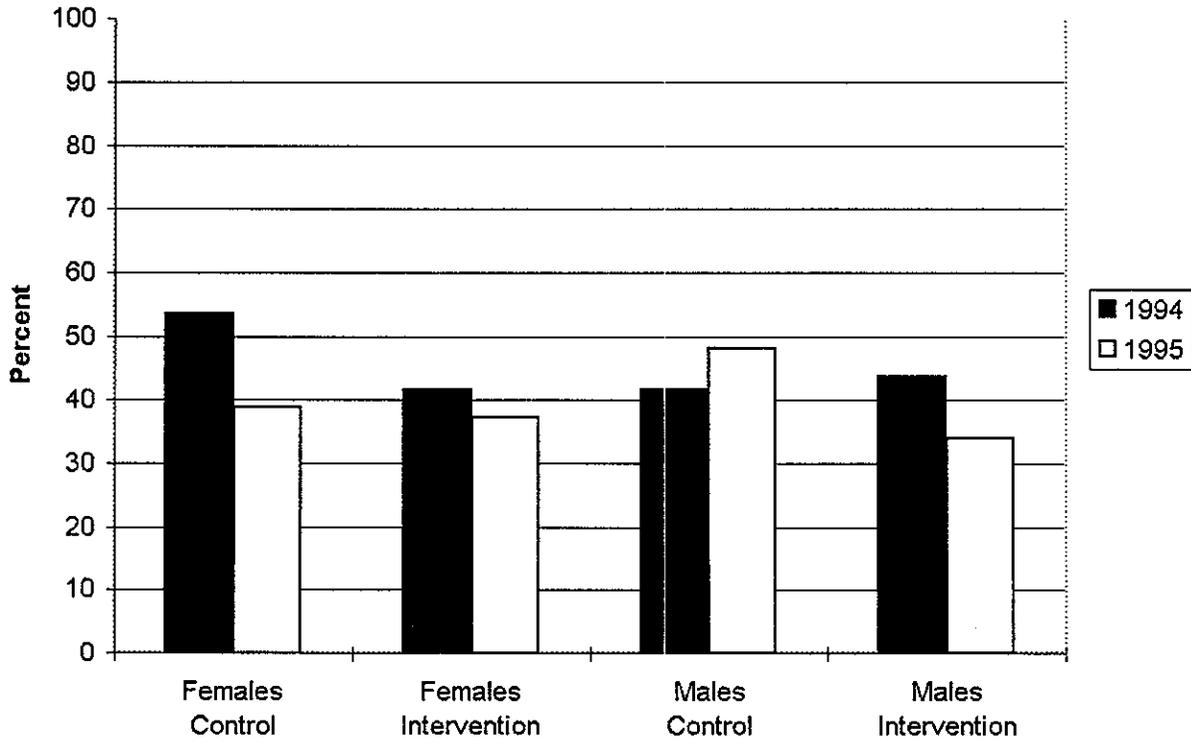


Fig.7: Percentage of Adolescents Who Agree That Women Who Initiate Condom Use Lose Respect of Their Partner

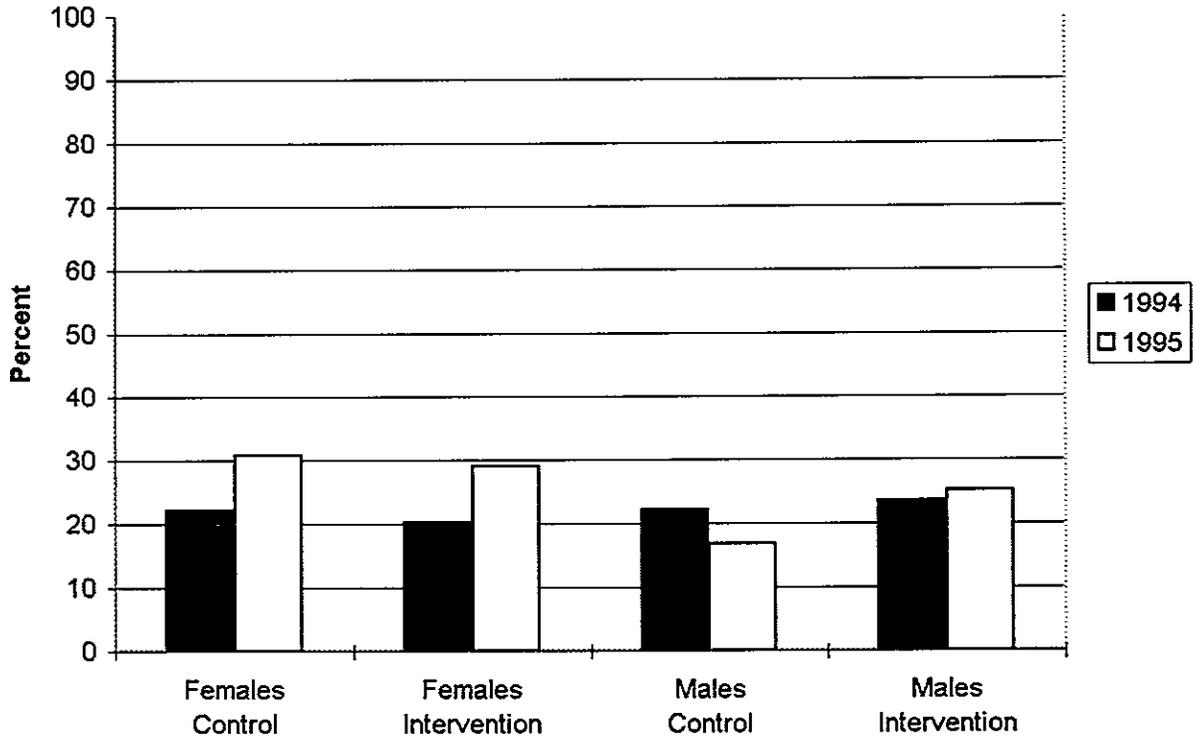


Fig.8: Percentage of Adolescents Who Agree They Would Be Shy to Buy Condoms in a Place Where They Can be Seen

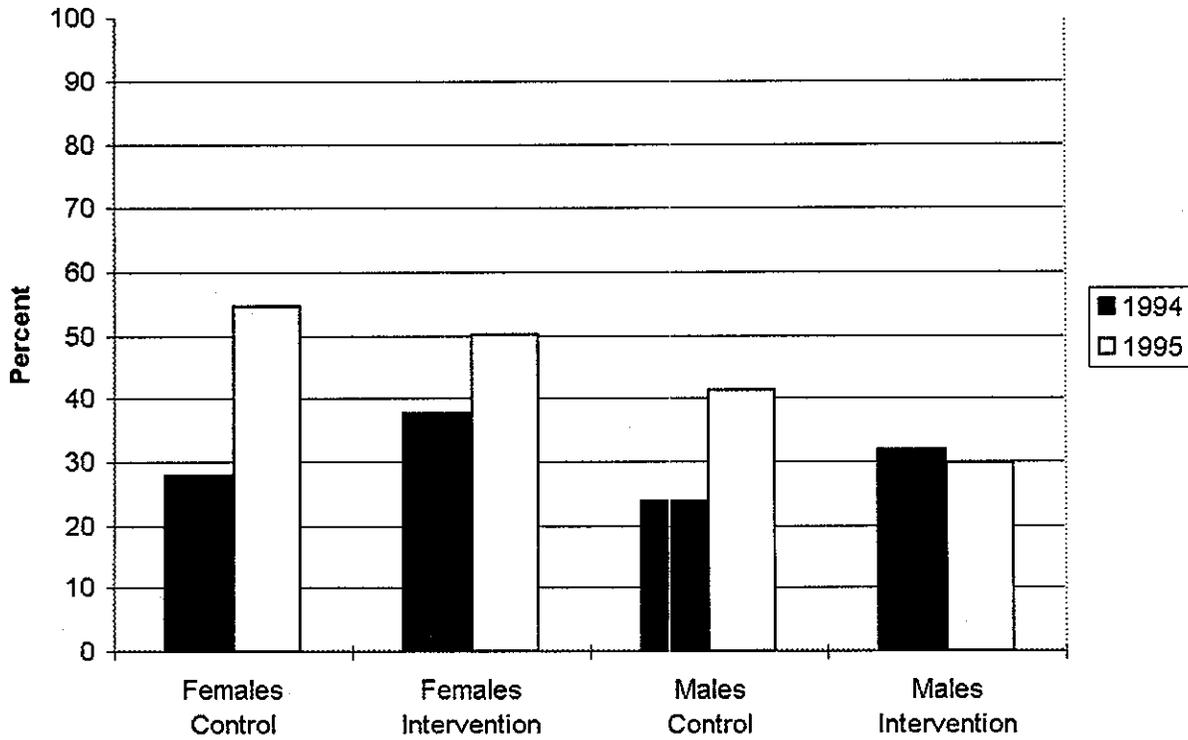


Fig.9: Percentage of Adolescents Who Agree That They Would be Shy to Obtain Condoms from a Health Worker

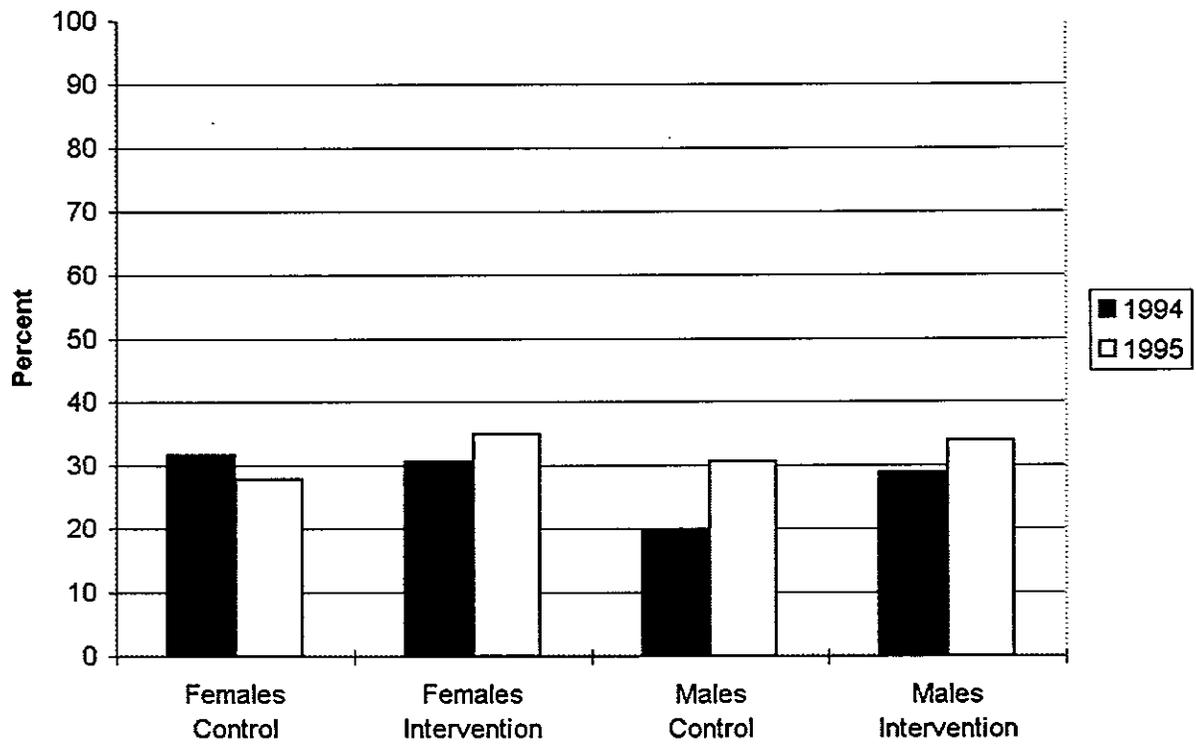


Fig.10: Percentage of Adolescents Who Agree That Few of Their Friends Use Condoms

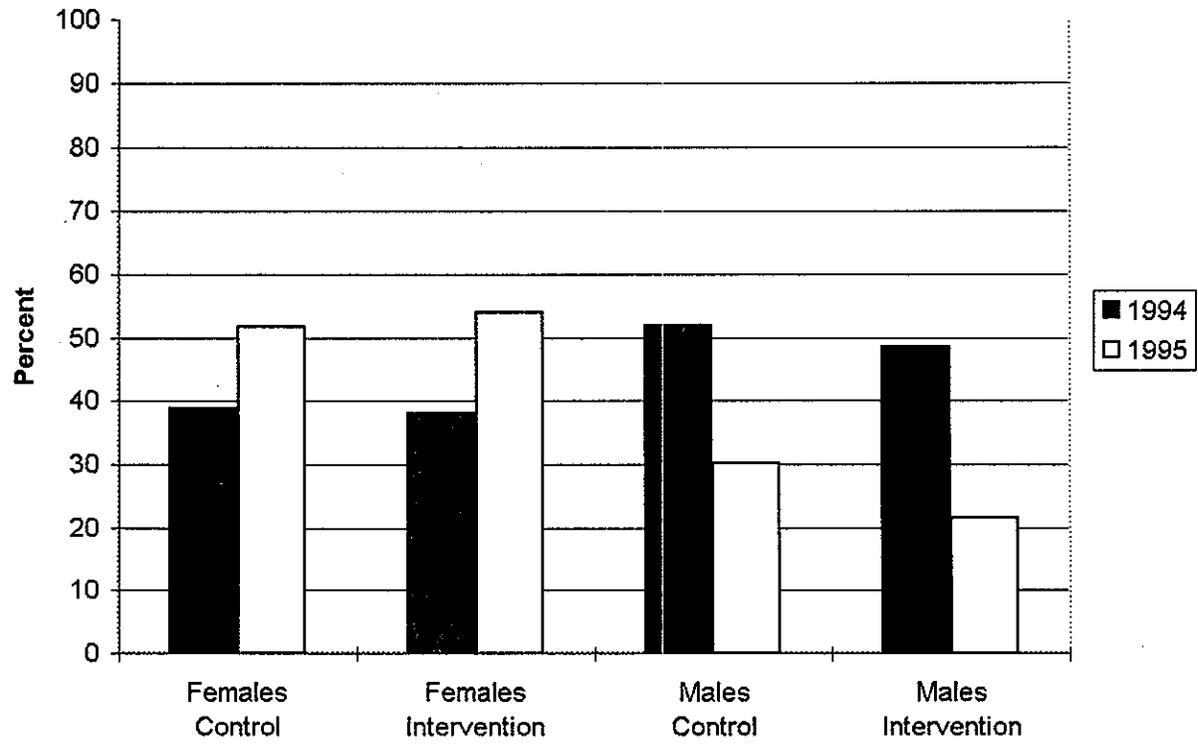


Fig.11: Percentage of Adolescents Who Believe Being Sexually Active is Good Because it Gives Pleasure

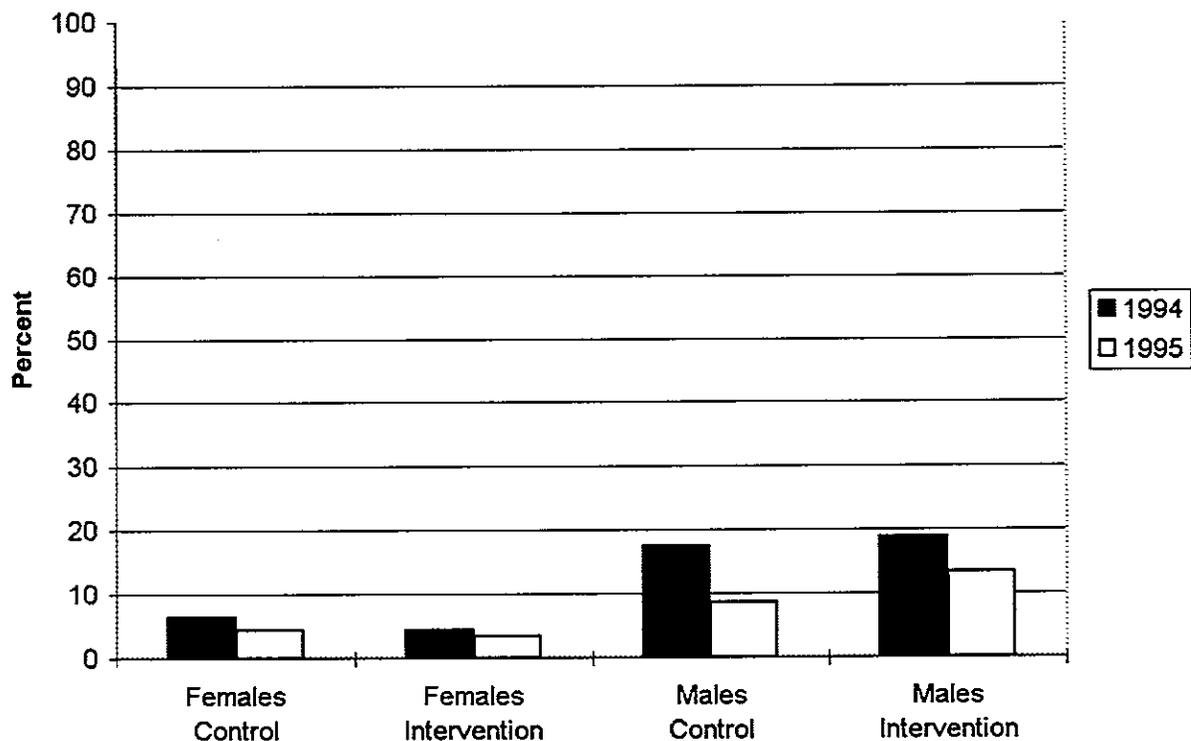


Fig.12: Percentage of Adolescents Who Believe That Being Sexually Active is Good Because it Increases One's Status with Peers

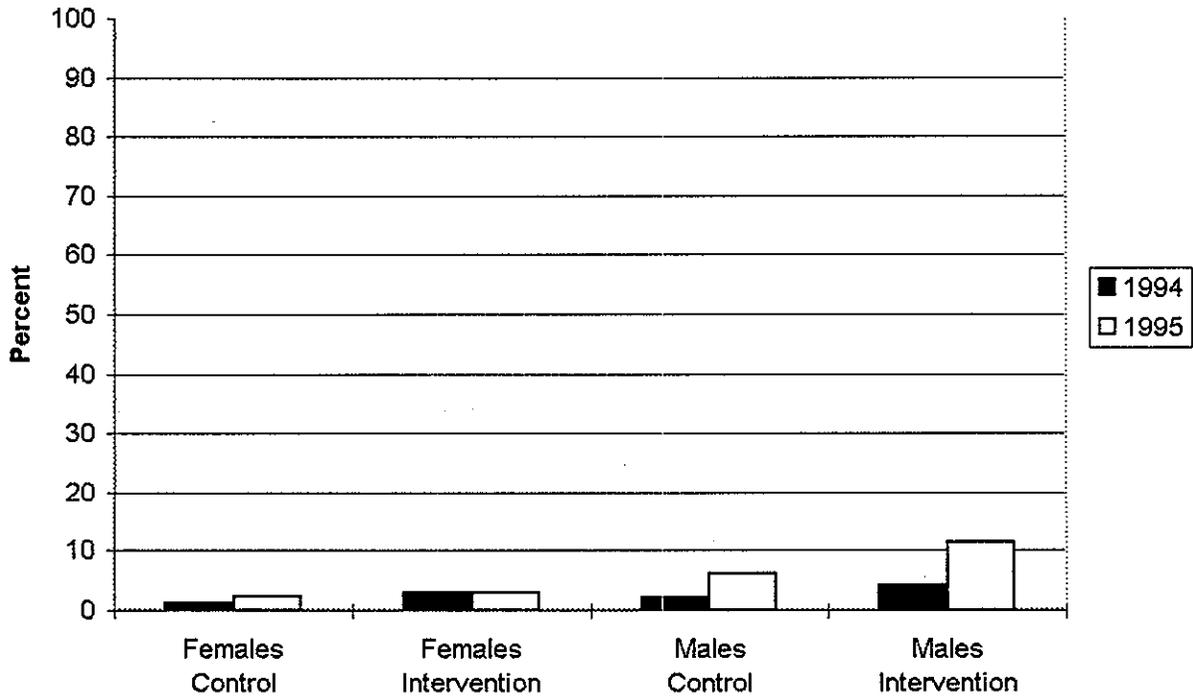
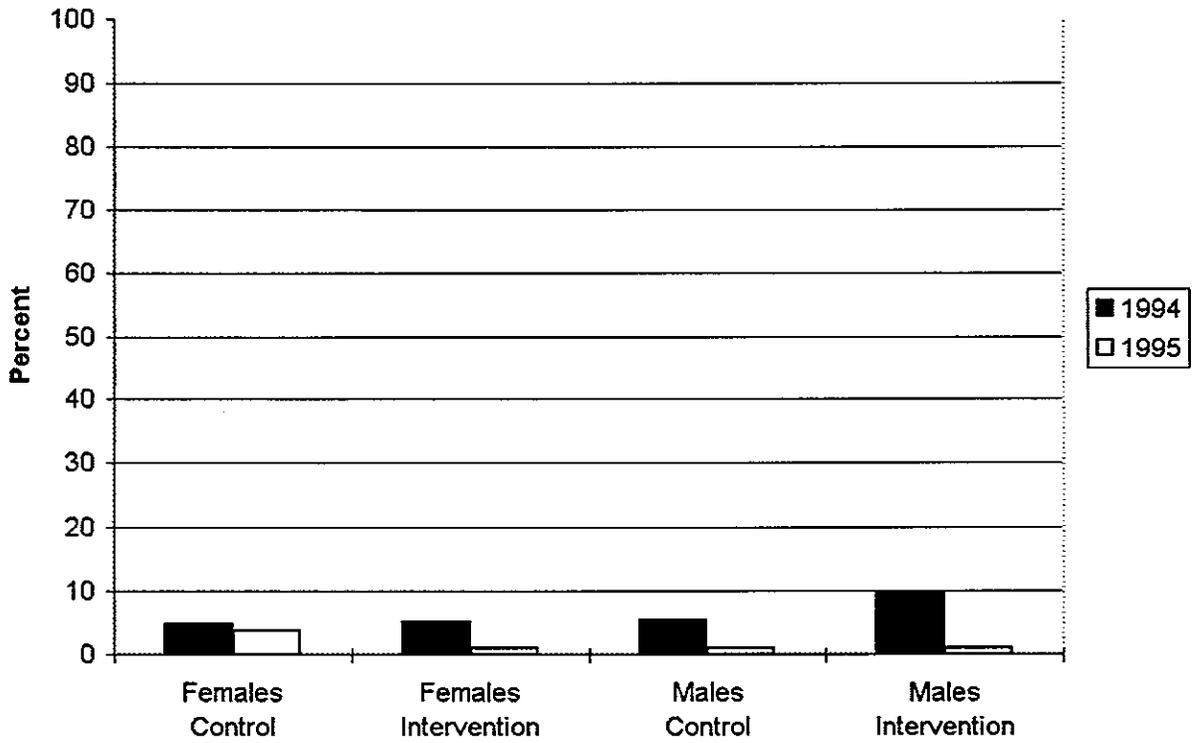


Fig.13: Percentage of Adolescents Who Believe That Being Sexually Active is Good Because it Leads to Marriage



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