

Research Article

The Effect of HIV/AIDS Education on Adolescents in Trinidad and Tobago

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Objective. This study was conducted to determine the effectiveness of an HIV/AIDS educational intervention on adolescents' knowledge about and perceptions of susceptibility and severity of HIV/AIDS. We also examined whether providing information about assertiveness skills led to an intention to delay initiation of sexual activity. *Methods.* A quasi-experimental design was used to conduct this study among secondary school students in Trinidad and Tobago. The five constructs of the Health Belief Model were used to design and test the impact of the educational lessons for the intervention group while the comparison group watched one educational video about HIV over four sessions. A total of 196 secondary school students (from nine schools) between the ages of 11 and 18 years participated in the study, 92 in the intervention group and 104 in the comparison group. *Results.* Those in the comparison group had higher knowledge scores at posttest than the intervention group, controlling for pretest knowledge ($P = .001$), but those in the intervention group were more likely to plan to delay sexual initiation ($P = .006$). *Conclusions.* While knowledge scores increased for both groups, intention to delay sexual intercourse was only seen among the intervention group and within the younger age groups.

1. Introduction

Human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), is a slow acting retrovirus. HIV is transmitted by unprotected sexual intercourse, contaminated blood used for blood transfusions, needles contaminated with HIV, prenatally/perinatally, and by breastfeeding [1, 2]. By the end of 2007, an estimated 33 million people worldwide were living with HIV of which 2.7 million were new infections and there were two million HIV/AIDS related deaths. Young people between the ages of 15 and 24 years accounted for 45% of new HIV infections worldwide [3].

The rate of HIV infection has reached epidemic proportions in the Caribbean and the prevalence rate is now second to sub-Saharan Africa [3, 4]. The first AIDS case in the Caribbean was reported in Jamaica in 1982 [4]. In the Caribbean there were 230,000 people living with HIV by the end of 2007. Twenty thousand (8.7%) of these were

newly infected cases and there were 14,000 HIV/AIDS related deaths [3]. The primary mode of transmission of HIV in the Caribbean is through heterosexual contact although the virus is also spread through homosexual and bisexual contact, and to a small extent, intravenous drug use [4, 5]. Since that time, every country or island in the Caribbean has residents that are either HIV positive or have a diagnosis of AIDS [1, 6]. Seventy percent of the HIV/AIDS cases in the English speaking Caribbean occur in the age group 15 to 44 years old [4].

If the increasing incidence of HIV/AIDS in the Caribbean is not addressed there will be decreased productivity and economic losses in the areas of agriculture, tourism, mining, lumber, finance, and trade. Economic growth is negatively impacted when HIV/AIDS prevalence is greater than 5% per capita [1]. Trinidad and Tobago (T & T) is the southernmost twin island republic in the English speaking Caribbean with an estimated population of 1.1–1.3 million people [7, 8]. In 1983, eight persons were diagnosed with AIDS in Trinidad

and Tobago, among individuals who were either bisexual or homosexual [7, 9, 10]. Since the beginning of the HIV/AIDS epidemic in 1983 to end of the third quarter of 2007, there have been a total of 24,132 documented cases of HIV/AIDS in T & T [11], and an HIV prevalence rate of 1.5%. In 1999, HIV/AIDS was among one of the five leading causes of death in the general population and the leading cause of death in 15–34 year olds [7]. Teenage girls outnumbered teenage boys 6 to 1 for new infections in 2005 and the HIV prevalence rate among 15–24-year-olds in 2007 was 0.3% for males and 1% for females [12, 13]. Of the new HIV cases at the end of the third quarter of 2007, teenagers between the ages of 15 and 19 years accounted for 0.049% of the new HIV cases in T & T [11].

Research published in 2002 indicated that life issues that are of concern for the adolescent population of Tobago include limited resources and information about sexual health [14]. In 2005, six females between the ages of 10 to 14, 49 females between the ages of 15 to 19, and eight males between the ages of 15 to 19 tested HIV positive [12]. By the end of the third quarter of 2007, no teenagers 10–14 years of age were diagnosed with HIV, but in the 15–19 age group, 2 males and 14 females tested positive for HIV [11].

Adolescents view themselves as being unique and as such immune to disease and death. Their thinking is that something bad will happen to someone else, not me [15]. In the case of HIV/AIDS, adolescents may view others as being vulnerable to the disease while they are invulnerable. This personal fable can lead the adolescent to engage in risky behavior and/or not use precautions when engaging in sexual activity. Teenagers often do not plan their first sexual experience; it simply happens. The fact that sexual intercourse just “happens” indicates that the teenager was not prepared for the activity and more than likely has not taken precautions to prevent pregnancy or the transmission of disease [16].

In the 1995 Youth Response Survey: A National Survey of Knowledge, Perceptions, and Practices among 1500 Youth in Trinidad and Tobago, Subsequent to IEC Activities on AIDS, results showed that respondents perceived the occurrence of AIDS to have reached crisis proportions. They indicated that they received information about HIV/AIDS from the radio, local and foreign television broadcasts, posters/pamphlets, public health/social workers, newspapers, and magazines [17]. While students reported receiving information about HIV/AIDS in schools, the content of the information was not ascertained. While the incidence of HIV/AIDS is currently comparatively low in teenagers, it is important to identify sexual behaviors and beliefs about the disease that put them at risk for contracting HIV/AIDS in order to tailor programs to meet the needs of this population [11, 12].

The objective of this study was to determine if an HIV/AIDS education intervention program for adolescents between the ages of 11 to 18 years would increase knowledge about HIV/AIDS and self-efficacy in assertiveness skills compared to traditional HIV/AIDS information.

2. Materials and Methods

2.1. Recruitment and Consenting. A quasi-experimental study design was used to assign schools to intervention or active comparison groups. Before the research began, approval was obtained from the appropriate Ministry of Education officials in Trinidad and Tobago and the Loma Linda University Institutional Review Board (IRB). Approval letters from the various Ministry of Education officials were forwarded to regional school supervisors and to principals that were to be included in the study. The regional school supervisor was informed that schools that had active abstinence clubs were being excluded from the study. Once the regional school supervisor identified secondary schools to be included in the program, the school principals were contacted and the program was explained to them along with the process of how classes were to be randomly selected. Secondary schools were matched based on the socioeconomic status of parents and whether or not the school was a public school or a religiously affiliated school as determined by the regional school supervisor. After matching, one school was randomly selected to be in the intervention group and the other in the comparison group. There were 104 students in the comparison group and 92 students in the intervention group for a total of 196 student participants.

Once the principals of the matched schools agreed to include their school in the study, the classrooms were randomly selected and students from these classrooms were invited to participate in the study. The student investigator verbally informed the students in the randomly selected classrooms about the study, and students were given the opportunity to ask questions about the program. Parental consent forms and student assent forms were distributed to students in the randomly selected classrooms. Students were advised to take the parental consent forms to their parents or legal guardians for signature and only children of those parents who gave written permission to be in the study were allowed to participate. The student investigator's cellular telephone number and the office telephone number for the Manager of Student Support Services were included on the parental consent form in the event that parents/legal guardians wanted additional information or had questions about the study. A total of ten schools were included in the program but the principal of one school decided to forego participation the day before the program was to be implemented in the school. Two hundred and fifteen students agreed to participate in the program and 196 completed the program. Students who did not return the parent permission forms within one week of the first distribution were given another form. All students who received parental permission were asked to and signed an assent form.

The students were told that the information they provided and their study participation would be kept confidential, that truthful responses would be helpful in developing HIV/AIDS educational programs for their peers who attend secondary school, and that they would not be penalized for not participating in the study. Beneficence was maintained throughout the program. A description of the research study and procedures were given to parents prior to obtaining

consent and risks were explained. Parents were given the opportunity to ask questions about the research before they provided consent. The participants had the opportunity to opt out of the program at any time without being adversely affected by the student investigator or by school authorities.

2.2. Study Participants. The study participants were between 11 and 18 years of age and attended nine participating secondary schools in Trinidad and Tobago. Students who were involved in governmental, non-governmental or private HIV/AIDS related educational activities or utilized the services of the Family Planning Association of Trinidad and Tobago or The Ministry of Health RAPPOR program were excluded from participating in the study.

2.3. Procedures. The study was conducted between April and November of 2008. A total of 196 students from nine secondary schools in Trinidad and Tobago participated in the study. The study was presented to more than 500 secondary school students throughout the nine schools. The intervention and comparison programs were conducted once per week over four consecutive weeks and each session was 30–45 minutes in length. The pretest and posttest were administered at Week 1, prior to the first session and Week 6, one week after the final session. The intervention program consisted of lectures and active skills-based learning on basic facts about HIV, ways to decrease the spread of HIV, and assertiveness training while the comparison program consisted of watching educational DVD's about HIV/AIDS without discussions. The student investigator met with students in a classroom or conference room selected by the school principal.

The first session of the intervention program provided information about HIV, modes of transmission, risk factors, and effects of HIV/AIDS on the health of individuals. The class was divided into teams and a game quiz was used to spark discussion. The second session covered how to decrease and prevent the spread of HIV. The third and fourth sessions included information about assertiveness skills about how to say “no” to unwanted sexual advances. The students engaged in role playing activities on how to refuse sexual advances using potential scenarios that the student may encounter.

The comparison group received passive instruction by watching three DVDs, viewed over 4 sessions, about HIV/AIDS. The names of the DVD's were Force Ripe Man Part 1, Force Ripe Man Part 2, Understanding HIV/AIDS, and Voices. Each DVD was between 25 and 30 minutes long. There were no structured lectures for this group.

Students were asked to put their initials and birth date on the pre- and posttest so the surveys could be matched, while preserving confidentiality. All completed pre- and posttests were collected by the student investigator, and placed in a sealed envelope and only viewed by individuals on the research team.

2.4. Measurement Instrument. The questionnaire was a 92-item instrument that included demographic items and statements/questions from The AIDS Knowledge and Attitude Survey an established scale used to assess the adolescents'

knowledge about and modes of transmission of HIV/AIDS. The Cronbach alpha (α) for the 10-item knowledge scale was 0.72. Ten knowledge items were used in our study with a Cronbach α of 0.47. The options for these items were true/false/do not know.

Perceived susceptibility of contracting HIV/AIDS was measured using a scale developed by [18] Health Belief Model—Perceived Susceptibility (HMBP). This is a subscale of the health belief model and the established Cronbach alpha was 0.72. The Cronbach α for this study was slightly lower 0.64. The responses were on a 4-point scale that ranged from 1—disagree to 4—agree. Statements from this scale include “People like me do not get HIV infections” and “People my age do not get HIV infections”.

The Condom Use Self-Efficacy Scale (CUSES) is a 28-item scale developed by [19]. Three items from this scale were modified and included in the questionnaire. The items were modified in a manner that was considered to be age and culturally appropriate for the participants. The Cronbach α for the modified items in our study was 0.70.

The Parent-Adolescent Communication Scale is a 20-item scale that consists of two subscales with 10 items in each subscale; open family communication and problems in family communication developed by [20]. The scale has a preestablished Cronbach α of 0.87. All 20 items from this scale were included in the questionnaire for our study with a resulting Cronbach α of 0.77.

The Attitudes toward Abstinence scale is a 12-item scale developed by [21] with a preestablished Cronbach α of 0.85. In our study the Cronbach α was 0.81. All 12 items on this scale were used and measured on a 5-point Likert scale ranging from 1—strongly disagree to 5—strongly agree.

The Beliefs about Preventing AIDS is a 36-item scale developed by [22]. Two of the five subscales included in our study were perceived threat (3 items) and self-efficacy about speaking on topics about safe sexual practices and using condoms (5 items). The Cronbach α for these scales in our study were 0.40 and 0.63, respectively.

The Healthy Oakland Teens Survey was developed using previous surveys and was modified after it was pilot tested on junior high school students to accommodate the students in Oakland, CA. This survey was used as a pretest in the spring of 1994 in Oakland, CA prior to implementing changes in the school based peer led AIDS prevention program for junior high school students. Five items measuring sexual precursors were included in the pre and post test. The Cronbach alpha for these five items was 0.78. Questions asked were have you ever talked to someone of the opposite sex you like? Have you ever tongue kissed or touched the genitals of someone of the opposite sex? Yes responses were summed to form a total score for each respondent (0–5).

The Postponing Sexual Initiation Scale is a 12-item scale developed by [23] to determine the beliefs and attitudes among adolescents about delaying sexual activity. The five constructs of the Theory of Planned Behavior and Social Cognitive Theory were used to develop the scale. The preestablished Cronbach α for the scale was 0.86. For the study, the Cronbach α was 0.78.

The survey instrument for the educational program was pilot tested in Central Trinidad among 15 adolescents between 12 and 15 years of age. A church hall was used as the site for pilot testing after approval was received from the church officials and the LLU IRB. The adolescents who participated in the pilot study were not participants in the educational program. After the results of the pilot study were reviewed, questions were revised as suggested by Trinidadian consultants who have been actively involved in HIV/AIDS programs and are familiar with the culture of Trinidad and Tobago.

2.5. Data Analysis. Statistical analyses were performed using the Statistical Packages for the Social Sciences (SPSS) version 16.0 software. Data were entered, cleaned, and outliers were identified. Frequencies and percentages were performed on categorical data, and descriptive statistics run for continuous data. ANCOVA was used to determine if there were differences between study groups at posttest, controlling for pretest values. Paired samples *t*-tests were used to compare differences of scores on variables within study groups (pre- to posttest).

3. Results

Comparisons on participant characteristics were conducted between two study groups to determine if there were significant differences at pretest. There were significant differences in age between study groups: those in the intervention group were younger (13.4 years) than those in the comparison group (14.7 years) ($P < .001$). Thus, age was statistically controlled for in subsequent analyses (ANCOVA). Most students in both groups identified themselves as being of African or Indian descent or of mixed race. In both groups, at least 50% of the students lived with both parents, with over 20% living with their mother only. There were no differences between the groups on either of the parent's occupation. At least 50% of students in both groups were Protestants. There were no significant differences in church attendance between the intervention and comparison groups. See Table 1.

ANCOVA was performed between the comparison and intervention group, to determine differences at posttest, controlling for pretest values. At pretest, the comparison group had higher scores for knowledge than those in the intervention group ($P = .009$). The comparison group had higher scores than those in the intervention on the following variables at pretest, which may be partially accounted for by the differences in age between the two study groups: perceived seriousness about HIV ($P = .01$), self-efficacy about speaking on topics about safe sexual practices and using condoms ($P = .001$), and attitudes towards abstinence ($P = .006$). See Table 2.

After controlling for pretest values, and age and gender, the only differences between study groups were as follows: the comparison group had significantly higher knowledge scores at posttest compared to the intervention group ($P = .001$) whereas the intervention group had lower intention to delay sexual activity ($P = .006$).

There were no statistically significant differences between the comparison and intervention group at posttest controlling for pretest values and age and gender, on the variable of family communication. See Table 2.

Both groups had statistically significant higher posttest scores on the variables of knowledge, susceptibility, and self-efficacy as it pertains to youth being able to speak about condoms and condom use ($P \leq .001$). The intervention group also had significantly higher scores for attitudes toward abstinence at posttest ($P \leq .001$). There was a significant decrease in scores for intention to delay sexual activity ($P \leq .001$) in the comparison group. See Table 3.

Correlations were conducted among the variables assessed at pretest. Age in years was negatively related to parent-adolescent communication ($r = -.183$, $P < .01$) indicating that the younger student had more open family communication while the older student had less open family communication. The age of the student was positively associated with problems family communication ($P = .049$). The younger student had fewer problems with family communication and the older student had more problems with family communication. The adolescent self-efficacy as it pertains to speaking about topics on safe sexual practices is positively related to parent-adolescent communication ($r = .197$, $P = .006$) indicating that students who had open family communication were better able to speak about safe sexual practices.

4. Discussion

The study assessed the impact of an intervention that involved active learning versus students who merely watched DVDs about HIV/AIDS on three of the five main constructs of the HBM: perceived susceptibility, perceived severity, and self-efficacy in relationship to being able to practice safe sex and indirectly by discussing issues that pertain to condoms with their peers among 11–18 year old adolescents.

The comparison group had higher pre- and posttest scores on HIV/AIDS knowledge HIV transmission compared to the intervention group, but this was not statistically significant. The total mean score increased for intervention and comparison groups 5% and 8%, respectively. This is similar to research conducted in South Africa and Trinidad and Tobago, which demonstrated an increase in transmission knowledge about HIV from pre- to postintervention [24]. Another study conducted among young people in Guyana between the ages of 12–20 years in which 95.6% of the respondents also knew that HIV can be transmitted by having sexual intercourse with someone who is HIV positive [25]. In two earlier studies conducted in Trinidad and Nigeria among secondary school students 100% and 83.3% of the respective secondary schools knew that AIDS was transmitted by sexual contact [26, 27].

While the comparison group had greater improvements in knowledge the intervention group showed more change in the intention to delay sexual initiation. The intervention group was younger than the comparison group, had more open family communication, and therefore may be more

TABLE 1: Demographic information for intervention and comparison groups.

	<i>n</i>	Intervention (<i>N</i> = 92) % or Mean (SD)	<i>n</i>	Active Comparison (<i>N</i> = 104) % or Mean (SD)	<i>P</i> value
Gender (% Male)	92		104		
Male		39.1		31.7	.000
Female		60.9		68.3	
Age	92	13.54	104	14.69	.000
Race					.842
African descent	92	45.7	104	37.5	
Indian descent		9.8		18.3	
Mixed race/ethnicity		44.6		44.2	
Live with					.412
Both parents	91	51.1	103	53.8	
Mother only		22.8		26.9	
Other*		25		18.3	
Mother's level of education					.014
Elementary school	58	9.8	81	7.7	
High school		42.4		45.2	
Some college or more		8.7		12.5	
Trade school		1.1		5.8	
Don't know		38.1		28.8	
Father's level of education					.880
Elementary school	55	7.6	74	10.6	
High school		32.6		33.7	
Some college or more		7.6		17.3	
Trade school		10.9		7.7	
Don't know		41.3		30.5	
Mother's occupation					.837
Professional/business owner	79	28.3	99	29.8	
Trade/clerical		25		34.6	
Housewife		29.3		26	
Unemployed		3.3		4.8	
Don't know		14.1		4.8	
Father's occupation					.843
Professional/business owner	89	34.8	103	30.8	
Trade/clerical		42.4		51	
Unemployed		1.1		3.8	
Don't know					
Religion**					.113
Protestant	92	66.3	103	50.0	
Catholic		18.5		32.7	
Other		15.2		17.3	

*"Other" includes father only, mother and stepfather, father and stepmother, grandparents, and other relatives/people.

**"Protestant" includes Anglicans, Baptists, Pentecostals, Presbyterians, and Seventh-day Adventists. "Other" includes Hindus and Muslims.

TABLE 2: Comparison of study variables at pre- and post-test between intervention and comparison groups.

	Pretest*				P value	Posttest**				P value
	n	I x (SD) (n = 92)	n	C x (SD) (n = 104)		n	I x (SD)	n	C x (SD)	
Knowledge %	91	67.3 (14.99)	104	75.7 (14.73)	.009	90	76 (14.06)	103	83 (11.36)	.001
Susceptibility	92	1.87 (0.72)	104	1.61 (0.61)	.020	92	3.37 (0.68)	104	3.29 (0.54)	.335
Seriousness		3.23 (0.72)		3.50 (0.50)	.014		3.41 (0.65)		3.49 (0.48)	.384
Self-efficacy (condom use)	92	3.70 (1.11)	104	3.97 (0.89)	.110	92	3.73 (1.22)	104	3.96 (0.98)	.096
Self-efficacy	92	3.52 (0.57)	104	3.80 (0.39)	.001	91	3.55 (0.58)	104	3.63 (0.52)	.276
Abstinence attitude	92	3.64 (0.73)	104	3.98 (0.80)	.006	92	4.02 (0.68)	104	3.91 (0.90)	.219
Precursors to sexual activity	88	2.31 (1.63)	96	2.34 (1.57)	.927	86	2.43 (1.43)	93	2.56 (1.50)	.393
Intention to delay sexual activity	90	1.32 (0.45)	101	1.34 (0.44)	.792	89	1.33 (0.46)	100	1.15 (0.50)	.006
Combined family communication	92	3.14 (0.67)	104	3.18 (0.64)	.736	92	3.18 (0.66)	104	3.14 (0.76)	.685

*Controlling for age and gender.

**Controlling for age, gender, and pre-test values.

TABLE 3: Comparison of pre and post-test values of study variables within intervention and comparison groups.

	Intervention				P value	Comparison				P value
	n	Pretest x (SD)	Posttest x (SD)			n	Pretest x (SD)	Posttest x (SD)		
Knowledge %	90	67.3 (15.1)	75.8 (14.1)	<.001	103	75.8 (14.72)	83.01 (11.36)	<.001		
Susceptibility	92	1.86 (0.72)	3.32 (0.68)	<.001	104	1.62 (0.61)	3.33 (0.54)	<.001		
Seriousness	91	3.24 (0.72)	3.36 (0.65)	.146	104	3.49 (0.50)	3.54 (0.48)	.400		
Self-efficacy (condom use)	92	3.65 (1.11)	3.59 (1.22)	<.001	104	4.01 (0.88)	4.09 (0.98)	<.001		
Self-efficacy	91	3.58 (0.57)	3.54 (0.58)	.493	104	3.74 (0.39)	3.64 (0.52)	.064		
Abstinence attitude	92	3.73 (0.73)	3.98 (0.68)	<.001	104	3.90 (0.79)	3.95 (0.88)	.372		
Precursors to sexual activity	86	2.0 (1.61)	2.13 (1.43)	.251	93	2.59 (1.58)	2.84 (1.51)	.15		
Intention to delay sexual activity	89	1.34 (0.45)	1.33 (0.47)	.857	100	1.32 (0.44)	1.15 (0.50)	<.001		
Combined family communication	92	3.22 (0.67)	3.22 (0.66)	.962	104	3.12 (0.64)	3.11 (0.76)	.851		

receptive to open dialogue about HIV/AIDS and making age appropriate decisions about engaging in sexual activity.

On the variable of intention to delay sexual activity there was a statistically significant difference between the intervention and comparison groups at posttest ($P = .006$). This finding indicates that the intervention program that involved active learning and role playing had a positive impact on the adolescent's in the intervention group intention to delay sexual initiation. Several intervention programs in sub-Saharan Africa have been effective in promoting a delay in sexual initiation [28]. These programs were of longer duration and hence were able to report results beyond the intention to delay sexual initiation. The main reasons why some adolescents in the Caribbean did not want to engage in sexual activity were wanting to wait until marriage, wanting to wait until they were older, wanting to avoid pregnancy, fear of disease, and not being emotionally ready [29, 30].

While information about the seriousness of HIV is not readily available for the adolescent population, adolescents are not usually worried that they may contract HIV [25,

26, 29]. Both groups in our study had high perceived susceptibility for contracting HIV, with the intervention group viewing themselves as more susceptible to the disease than the comparison group. It is important to note that even though the intervention group on average was younger than the comparison group more students from the intervention group were sexually active when compared to the comparison group. This might account for why the students in the intervention group viewed themselves as being susceptible to contracting HIV. In another study, Guyanese youth who were sexually active thought it was very possible for them to contract AIDS and those who were knowledgeable about AIDS thought there was some possibility they could contract the disease [25]. These findings differ from those reported in a study conducted in rural Jamaica in which adolescents between the ages of 15–18 did not view themselves as being susceptible to HIV consistent with the personal fable of adolescence [31]. Ideas raised during the focus groups indicate that adolescents do not think they are susceptible to contracting HIV because it is the first time they are having

sex, because a person who is HIV positive can be identified by physical changes that occur, and adolescents simply believe they are disease free [31].

In our study, students in both the intervention and comparison groups believed that young people their age should know how to use condoms correctly and that they should be able to discuss condom use with their peers in an objective manner. Some of the students were interested in learning how to put on a condom correctly. However, before adolescents can discuss condom use among themselves they need to have accurate information from a reliable source. Parents/guardians and teachers/guidance officers are in an ideal position to disseminate such information even though research has indicated that such education is prohibited in some schools and parents are not comfortable speaking about HIV/AIDS with their teenagers [24, 32]. Therefore, parents and teachers need to be educated about issues that pertain to sexuality and how to discuss these issues with their children. In addition, trust need to be established between parents/guardians and the Ministry of Education whereby parents will understand that the school is not trying to corrupt their children in teaching them about sex, sexuality, and HIV/AIDS. It is also important to teach parents that education about condom use does not lead to increased activity [33]. Parents need to realize that if responsible adults with accurate information are not permitted to/do not share information with their children, they may learn about HIV/AIDS from their peers who may not always possess correct information thereby propagating myths and misconceptions.

For future research we recommend further intervention studies among larger groups followed over a longer period to determine if there is a sustained effect of increased knowledge about HIV/AIDS that occurs during an intervention program. Future research can also look at self-efficacy as it pertains to condom use, attitude toward abstinence, and intention to delay initiation of sexual activity.

4.1. Strengths and Limitations. The strengths of the study are that schools were matched therefore the treatment and comparison groups were be similar to each other and the classrooms were randomly selected. The study was conducted in different geographic locations of Trinidad and Tobago and this provided information about adolescents in different areas of the twin island republic.

This study also has its limitations. Self reports were the only method of assessment. Eggleston et al. [34] observed that adolescents are not always truthful when providing self reports. Participants were informed that individual responses to the questions would be kept confidential and would not be shared with classmates, parents, or school authorities. They were also informed that the research will be useful to assist in developing programs for their peers in other secondary schools.

Another limitation is that findings from this study cannot be generalized because of the small sample size from one Caribbean country, and the group was somewhat homogeneous. Selection bias was another limitation because students who wanted information about HIV/AIDS took the consent

forms home to be signed by their parent/legal guardian. Some students did not take the consent forms home because they did not think they were HIV positive; therefore, they did not perceive a need to acquire information about the disease (per the students). Additionally, some students did not want to know their HIV status so they opted out of the program even though it was explained that this research was about providing information about HIV and not about testing anyone for HIV/AIDS.

5. Conclusion

The students in the comparison group on average were older than the students in the intervention group. This may account for the difference in scores seen at pretest. Even though the comparison group had higher pretest knowledge, seriousness, self efficacy in relationship to speaking to peers about condoms and practicing safe sex, attitudes toward abstinence and intention to delay sexual initiation score the scores for the intervention group improved at posttest. The intervention was effective in that the direction of the change for the intervention group was positive.

At posttest the decrease in the comparison group's score on the variables of attitudes toward abstinence and delaying sexual initiation is cause for concern. If the older adolescents have negative attitudes toward abstinence and less intention to delay sexual initiation they may be at risk of contracting HIV/AIDS at a younger age which may in turn have a negative effect on their family life and their productivity in society.

This research is important to the field of health education because HIV/AIDS is a public health issue that has reached pandemic proportions. Over the last decade, HIV transmission has steadily increased in Trinidad and Tobago as in other Caribbean islands. Recent literature has identified HIV preventive actions such as perceived susceptibility to HIV/AIDS, gender norms about condom use and sexual behavior, and self-efficacy for taking HIV/AIDS preventive actions to be important in decreasing risky sexual behavior [35].

Interventions that use a theoretical framework and can be duplicated are necessary to curb the spread of the disease. Health educators can use current research to assist national and local government officials in implementing programs that increase knowledge about HIV and lead to more positive attitudes but that also lead to positive behavior change such as delaying sexual initiation. Since HIV is a preventable disease and information is available to the residents of Trinidad and Tobago from various venues, health educators can more effectively provide programs and interventions that will help to curb the problem.

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