The Impact of a Multifaceted Pre and Early Adolescent Female Program on Sexual Abstinence & Other Risky Behaviors

by

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Acknowledgments

Abstract

The Too Young For Two abstinence education program is a multifaceted curricula addressing sexual abstinence as well as character development and other related behaviors for girls. Using a single gender approach, the program addresses the specific needs of girls and the scientifically documented antecedent risk factors for early sexual activity. Implemented within a small, urban community, this study examines the pretest and posttest data from three years of pre and early adolescent girls (ages 9 to 14) participating in the program as well as a comparison group from the target population. Findings reveal the program is successful in stabilizing an at-risk group of pre and adolescent girls (ages 9 to 14), keeping them abstinent and preventing risky behaviors. The development of adult communication skills and a health self-image were significant factors in helping adolescent girls make appropriate choices about sexual activity and engagement other risky behaviors such as alcohol, drug, and marijuana use.

Introduction

Continuing concern over teenage sexuality and its concomitant array of problems continues to be fueled not only by high numbers of sexually active teens but also by the slow migration of these behaviors to younger and younger adolescents [1]. Data from three separate national study databases indicate one of five adolescents becomes sexually active prior to the age of 14 [2].   The consequences for early sexual activity include having a greater number of sexual partners, increased risk for sexually transmitted diseases and unplanned pregnancy [1]. Consequences for unplanned pregnancies include decreased educational attainment, decreased income potential, less stable relationship patterns as well as poorer health and educational outcomes for the children of teen parents [1, 3, 4].

In response to the concerns over adolescent sexuality, research has been conducted to investigate the wide range of potential variables affecting adolescents' sexual behaviors. The approach to identifying relevant variables has been framed by ecological theories of development that highlight the multiple layers of variables affecting development of individuals [5]. Bronfenbrenner's ecological theory of development provides an excellent framework for examining complex behaviors by starting with variables related to the individual (e.g., age, sex), then including additional layers extending past the individual to their immediate environment (e.g., family, peers) and beyond (e.g., social norms, and cultural attitudes). Using this approach has proven fruitful, as an extensive body of research has developed identifying an assortment of factors related to sexual activity in adolescents. Within the assortment of factors, several clusters of variables emerge which include those related to the individual, parental relationships, and peer groups.

In keeping with Bronfenbrenner's theory, one variable emerges as having differential effects on many of the others: gender. Tolman, Striepe, and Harmon [6] convincingly argue that gender is a crucial but missing variable in the examination of adolescent sexual health issues. Spencer et al.[7] found increased self-esteem levels delays initiation of sexual intercourse in girls but accelerates it in boys. Aarons et al. [8] found sexual intervention programming to be effective for girls but not boys. Lieberman et al. [9] also found differential effects across gender for pregnancy prevention programming. Research implicates gender as another critical variable to examine as boys and girls operate differently with regard to sexual behaviors.

Adolescent sexual behavior has been linked with other risk-taking behaviors such as smoking and alcohol use [10, 11]. Adolescents who engage in frequent use of substances are more likely to become sexually active. It should be noted that there are many possible mediating variables and the directionality of the relationship has yet to be established.

One other category of variables related to teen sexual behavior might be termed self-image. This category includes depression, self-esteem, and self-efficacy variables. Among these variables, self-esteem and self-efficacy have produced some mixed results. Carvajal and colleagues [12] found self-efficacy to be a protective factor against the initiation of intercourse. Robinson, Telljohann, & Price [11] found efficacy as one of the constructs predicting intercourse. Spencer, Zimet, Aalsma, and Orr [7] found high self-esteem in girls decreased the likelihood of initiating sexual intercourse.

The dimension of family relationships and the effect on adolescent sexuality has been studied at length [13]. Four aspects of family relationships have been investigated: parental regulation, parent/child connectedness, parents' psychological control, and parent/child

communication. Both parental regulation and parent/child connectedness have yielded fairly consistent results. Connectedness reduces the risk of adolescent pregnancy through keeping teens abstinent. Scaramella, Conger, Simons, and Whitbeck [14] found parental warmth and involvement to be a mediating influence on deviant peer groups. Most of the evidence on parental regulation indicates supervision is an important variable lowering the risk of teen pregnancy. The effect of supervision may reduce an adolescent's exposure to deviant peer groups and reduce the likelihood of risk-taking behaviors linked to sexual activity. Parents' psychological control reveals a slightly more complex picture. Excessive parental control is associated with negative outcomes. The most complex aspect of family relationships emerges from parent/child communication. Results across studies on parent/child communication find little agreement on the effects. However, this picture may be clouded by numerous additional factors including the temporal ordering of events. For example, are parents communicating with adolescents about sexuality after they suspect teens have become active? Further, the content, warmth, and attempts at control resulting from those conversations must be considered also.

An adolescent's peer groups also contribute to the likelihood of becoming sexually active. Scaramella, et al., [14] found links between deviant-peer affiliations and risk-taking behaviors in 9th and 10th graders that were then linked to pregnancy status. Vanoss Marin, Coyle, Gomez, Carvajal, and Kirby [15] found strong associations between having a boyfriend or girlfriend and sexual activity. Adolescents with an older boyfriend/girlfriend were 30 times more likely to be sexually active. In their analyses, Vanoss Marin and colleagues also found links to peer norms about sex as related to sexual activity.

As complex and varied as the reasons behind teen sexuality are the programs designed to address the issues of teen sexuality. Catalano et al. [16] recognized effective programs as those showing significant improvement in interpersonal skills, quality of peer and adult relationships, problem solving, self-efficacy. Kirby [1] has identified numerous characteristics of successful programs. Research has demonstrated the need to start early with abstinent teens as teens who have become sexually active constitute a different population subject to a different set of variables [17]. Doniger, Adams, Utter, and Riley [18] found though formative research that youth attitudes and beliefs about the onset of sexual activity were formed prior to age 12. Youth age 12 and younger were more likely to accept abstinence as appropriate method of avoiding the chances of unwanted pregnancies.

With the wide-reaching array of data relating to adolescent sexual behaviors, programs designed to reduce teen sexuality and/or pregnancy must be multi-faceted, dealing with several domains of behavior including issues relating to gender, self-efficacy, parental relationships, peer affiliations, as well as risk-taking behaviors. Programs must begin early, starting with pre- or early adolescence. Finally, a program should consider designing gender specific curricula to respond the different biological, sociological and psychological stages and needs of males and females.

Too Young For Two Program is a multi-faceted abstinence education program designed to help early and pre-adolescent girls (ages 9 to 14). It is a positive youth development program that seeks to promote social, emotional, cognitive, moral, and behavioral competencies. The *Too Young For Two Program* is a pregnancy prevention program based on abstinence according to the definition provided by the Title XX of the Public Health Service Act and Title V Section 510

(b)(2)(A-H).   As such, its exclusive purpose is to teach the social, psychological, and health gains to be realized by abstaining from sexual activity. The TYFT program teaches that abstinence is the expected standard and is the only way to avoid pregnancy, STIs, and other associated health problems. The TYFT program teaches pre and early adolescent girls that mutually faithful, monogamous relationships within the context of marriage are the expected standard of sexual activity. The program highlights the potential harmful physical and psychological effects of sexual activity outside of marriage, as well as the potential harms to a child born out-of-wedlock. To assist in achieving these goals, pre and early adolescent girls are also taught how to reject sexual advances and the role of drugs and alcohol in making them more vulnerable. Lastly, the TYFT program teaches girls the importance of self-sufficiency before engaging in sexual activity.

The educational curriculum of *Too Young For Two* is based on two components of Preventing Adolescent Pregnancy, a program of the Girls Incorporated national organization. Preventing Adolescent Pregnancy is an age-phased program that provides appropriate skills, insights, values, personal tools, peer support, and complete information. Based on developmental stages, research, and reality, this program centers on interactive, informal learning to nudge girls into "owning the discovery" that they have the right to be all that they can be. The key is motivating girls to make smart choices. The two components used for the educational services of *Too Young for Two* is Growing Together[SM] for girls, ages 9-11, and Will Power/Won't Power[SM] for girls, ages 12-14.

Growing Together[SM] increases communication about sexuality and relationships for girls, ages 9-11, and their caregivers. Five interactive sessions jump-start crucial, two-way

conversations between girls and a trusted adult about sexuality issues to open doors to future communication. Key topics include parents being the primary sexuality educators, changes during puberty, anatomy, physiology, and hygiene, adolescent sexual development and feelings, and values and expectations for teen sexual behavior.

A program evaluation of *Growing Together*, completed in the early 1990's, found that girls, ages 9-11, are more willing to look to their parents for help than are older girls. *Growing Together* was found to be helpful in decreasing adolescent pregnancy by delaying the onset of sexual intercourse. Girls who participated in *Growing Together* were less than half as likely as nonparticipants to have sexual intercourse for the first time.

Will Power/Won't Power is the program component for girls, ages 12-14. It provides assertiveness training and resistance skills. In this ten-session program, girls learn how to say no to sex as they enter the most pressure-sensitive adolescent years. Interactive sessions center on values, relationships, the reproductive system and female health and hygiene, separating sexual myths from reality, assertiveness communication skills, identifying and resisting sexual pressures from the media and peers, sexual decision-making and avoiding risky situations, the positive aspects of abstinence, and the power of a positive-sister support system.

Will Power/Won't Power was also evaluated in the early 1990's. The evaluation found that girls who participated in almost the entire program were least likely to have sexual intercourse – only half as likely as nonparticipants and less than one-third as likely as girls who participated for a shorter time.

Too Young for Two (TYFT) has added two additional components to *Will Power/Won't Power*. The first component includes an additional curriculum that addresses abstinence from

the perspective of some traditional American Indian cultures. The second additional session

utilizes *Baby Think-It-Over*[TM] infant simulators to give the girls a realistic experience of what it

is like to care for an infant. The infant simulator replicates the unpredictable, around-the-clock

crying of a young baby. An adolescent is assigned to care for "Baby" by inserting and turning a

care key in its back. The care key must be held in place anywhere from 5-35 minutes,

approximating the amount of time needed to care for an infant. The care key is attached to the

"parent" with a tamper-resistant wristband, so that only the "parent" can quiet "Baby." Tamper-

proof electronics monitor how well "Baby" is cared for by reporting neglect and rough handling.

The girls take the infant simulators with them to home and school for a period of approximately

48 hours.

As part of the *Baby Think-It-Over* component, the girls also utilize the *Empathy Belly* to

fully understand the physiological changes that occur to women's bodies during pregnancy. It

allows girls to experience how difficult it may be for women to carry the extra weight associated

with being pregnant. Young girls are introduced to the lifelong impacts on their own physical

well-being that is inherent in the process of becoming pregnant.

A successful pregnancy prevention program provides not only an effective abstinence

education curriculum but also programming and activities that address underlying problems that

can lead to pregnancy and "healthy alternatives" to sexual activity. Girls Incorporated provides

additional *Healthy Alternatives* programming which includes elements encouraging girls in math

and science, opportunities to discuss drug and alcohol concerns, substance abuse prevention

programs, and counseling among many others [19].

The TYFT multi-faceted approach to reducing adolescent sexuality and pregnancy aims most specifically at altering some of the known antecedent factors such as risk-taking behaviors (e.g., smoking, drinking), self-image issues, perceived parental involvement, communication, and peer affiliations. To examine the effectiveness of the TYFT program, both pre- and post-intervention data were collected along with data from a control comparison group within the same community. The hypotheses were as follows:

H(1): Girls in the TYFT program will show no differences from the comparison group in pre-test scores.

H(2): The TYFT intervention will prevent girls from engaging in risky behavior (sex, tobacco use, etc.)

H(3): The TYFT intervention will decrease negative peer affiliations for pre and early adolescent girls.

H(4): Girls in the TYFT intervention group will have an improved self-image.

H(5): Girls in the TYFT intervention group will have improved communication with adults and perceived parental involvement.

Methods

Participants

The population served by this project was girls, ages 9-14, who were *most at-risk* for an adolescent pregnancy. The girls are either members of Youth and Family Services Girls Incorporated of Rapid City or have been referred to this project by school counselors and social service agencies. Over the past five years, 1,572 unduplicated girls, ages 9-14, participated in this project: 56% were white, 35% American Indian, 4% Black, 4% Hispanic, and 1% other

minorities. Seventy-six percent (76%) of the girls lived in families with incomes at or below poverty level and 34% lived in families with incomes above the poverty level. Sixty-three percent (63%) of the girls lived in a non-traditional household or with a single parent.

The comparison group was selected from 4th to 8th graders in the Rapid City Area School District who were not participating in the **Girls Incorporated of Rapid City**'s programs. The data collected for each youth included demographics, program participation, and responses to a series of questions about risky behaviors, beliefs, perceived parental involvement, health, character development, and confidence building. The quasi-experimental design provided a means for obtaining information about both groups in the early fall and late spring for each year of the program. This study attempts to answer a series of questions about changes in attitude and behavior of young girls after participating in the Girls Incorporated prevention and intervention programs.

The population of the participants for this study is composed of youth form the Rapid City Area School District in grades 4 to 8. Over the five-year period, an average random sample of 487 pre-adolescent females and 300 early adolescent females selected using cluster sampling techniques to form the comparison group. Each cluster was defined as a specific class at a specific grade level with assigned students for the academic year. The students were given a *Consent Form* to be signed by their parents to participate in this study.

The program group, designated as the GI Group, was composed of a randomly selected sample of girls, ages 9 to 14, participating in the *Too Young For Two Program* during October and May of each program year. The selected girls were involved in programs that were not necessarily grade specific. Therefore, the program group distribution is based on age rather than

grade level. The comparison group distribution is based on grade level rather than age. All girls had parental consent to participate in the program and in the Adolescent Family Life (AFL) study.

To assure fidelity to the program, the implementation of the TYFT programming was continuously assessed. The Director and staff of the TYFT program was provided with feedback regarding the program annually. The focus of this paper, however, is upon the outcomes of the program. Many of the programs had overlapping goals, thereby enhancing the exposure to the target messages for these girls. External assessments took place at two major separate points during each program year. At the midyear point (January), a formative assessment was conducted with a focus on program implementation and process. Program instructors were given direct feedback. The end of the year assessment focused on outcomes giving instructors feedback on the measures of program success directly.

The *Too Young For Two (TYFT)* program has been ongoing for five years. Due to changes in teachers, facilities, and the growing pains of the first two years of programming, only the last three years was analyzed. For each year, samples of girls were selected at two collection points each year: early in the school year (October) to obtain pre-intervention data and near the end of the school year (May) to obtain post-intervention data. Given the separate samples of girls from pre- to post-testing, attrition was not assessed. However, any missing data from the girls sampled was factored into the analyses. Table 1 shows the sample sizes for each year, pre- and post-intervention and comparison groups along with the average grade levels and ages of the girls in each group. While Table 1 delineates the data from each year, the aggregate data for all

three years was analyzed. By aggregating data across three cohorts, the overall N for each group increased substantially improving significance and effect sizes.

Instruments

For each of the girls interviewed, data was collected on self-identified ethnicity, household size, and family structure (e.g., mother and father, mother only). To test the effectiveness of TYFT, a set of instruments was used based on previous research and designed to test the hypotheses stated above. Measures were reviewed by several professionals in the field and tested for validity and reliability. Each instrument was designed for age appropriateness and readability levels. All measures and protocols were submitted for IRB review (Institute for Educational Leadership & Evaluation, IRB 2706). Interval scales of measure included five multi-item ratings. The instruments of interest within this paper include the Youth Development Survey and the Health Practices Survey. These two surveys had a Cronbach alpha of 0.925 and 0.968, respectively. The Youth Development Survey is a 31-item instrument that measures respondents' current behavior patterns in regard to level of understanding of female sexuality, sexual behavior (intercourse, abstinence, etc.), alcohol use, substance use, and relationships with peers. For the purposes of this paper, only questions on substance use, sexual behaviors, peer relationships, and perceived parental relationships were used. The Health Practices Survey is a 24-item instrument that measures whether respondents and parents have improved their communication level about a variety of issues and personal problems. Additionally, the survey asks questions about nutrition, self-esteem, and self-confidence. For this paper, only questions related to self (depression, self-efficacy, problem solving) and communication with adults were analyzed.

The Kuder-Richardson formula (KR-21) was used to test the reliability of the survey instruments. Application of the KR-21 formula results in an estimate of reliability that is essentially equivalent to the average of the split-half reliability computed for all possible halves [20]. This established that the instruments were dependable and trustworthy in their measures.

This study is based on pretest and posttest survey data using both intervention and a comparison cohort. For both the intervention and the comparison group, pretest data were collected early in the fall semester (October). Posttest data for the intervention group were collected late in the spring semester (May) creating an interval of roughly 7 months. Both intervention and comparison students came from the Rapid City School District. Intervention students were referred to the Girls Incorporated program. The comparison group were grade matched cluster samples with the exclusion criteria of not being in the Girls Incorporated program.

Data from each group was aggregated over the three cohorts for analysis. This quasi-experimental design was analyzed for changes in effects from pre- to post-intervention and for differences between the Girls Incorporated sample and the comparison group.

Data were analyzed using both SPSS 12.0 and Minitab for Windows. One-way analyses of variance (ANOVA) and regression analyses were used to compare the pretest intervention girls to the comparison group as well as comparing the pretest intervention to the posttest intervention girls. Using this technique increases the chances of Type I errors. However, based on chance, those errors should be randomly distributed in the pattern of results. The significant results reported here follow a logical pattern and thus, are interpretable.

In addition, clusters of variables identified in the research literature as significant predictors of sexual activity were analyzed as predictors of sexual activity. These clusters included: risky behaviors – tobacco use, alcohol use, marijuana use; self-image – feeling sad and depressed, think of self as a good person, spend time with girls, can solve problems without help; communication – talk to parents about problems, talk to an adult about problems; perceived parental involvement – perceptions of how would parents feel if they found out about alcohol, marijuana, or drug use; and peer affiliations – peers encourage alcohol use, peers use alcohol, peers use marijuana.

Results

The intervention group of girls differed in significant ways from the comparison group (Table 2). First, the intervention group consisted of girls identified as most at-risk for an adolescent pregnancy. The groups also differed on demographic characteristics. Half of the intervention group consisted of minority girls compared to only a quarter in the comparison group. Analyses based upon ethnicity revealed no differences and therefore, will not be discussed further. One other important difference between the groups was the low percentage (39%) of the intervention group living in two parent households compared to the comparison group (67%). These demographic differences contribute to the overall at-risk status of the intervention group girls and may limit the direct comparisons that can be made between the two groups.

The first set of analyses consisted of numerous one-way analyses of variance (ANOVAs) comparing the mean scores on relevant questionnaire responses between the pretest intervention group and the comparison group. The same form of analyses was conducted to compare the

pretest to the posttest intervention groups. Table 3 summarizes the results from both sets of analyses. The results yielded several significant effects (Table 4).

Contrary to the hypothesis that the intervention group and the comparison group would not differ prior to intervention, the two groups of girls did differ on several variables. The comparisons being discussed contrast the intervention girls prior to receiving any programming to the control group. Girls in the intervention group were more likely to have used tobacco ($F(1,483) = 4.71, p < 0.05$) and marijuana ($F(1,483) = 5.55, p < 0.05$), more likely to report feeling sad and depressed ($F(1,471) = 7.04, p < 0.01$), and had parents whom they believed would be less upset about their use of alcohol ($F(1,473) = 7.58, p < 0.01$), marijuana ($F(1,473) = 17.74, p < 0.001$), or drugs ($F(1,473) = 16.00, p < 0.001$) than the comparison group.

Pretest-Posttest Intervention Groups Results

Analyses of the pretest to posttest data revealed no significant effects between the two intervention groups at the 0.05 alpha level. The absence of effects between the pretest and posttest intervention groups is noteworthy. A significant effect between those groups could denote a significant increase or decrease in an undesirable behavior. Therefore, it is important to note that the absence of significant effects between the groups reveals that the behaviors did not change.

Moreover, given that the intervention girls were identified as most at-risk for an adolescent pregnancy along with the existing statistical differences between them and the comparison group, the absence of any change, particularly for risky behaviors, is remarkable.

Regression Analyses

Based on variables identified in the research literature, five clusters were analyzed as predictors of sexual activity. These clusters included: risky behaviors – tobacco use, alcohol use, marijuana use; self-image – feeling sad and depressed, think of self as a good person, spend time with girls, can solve problems without help; communication – talk to parents about problems, talk to an adult about problems; perceived parental involvement – perceptions of how would parents feel if they found out about alcohol, marijuana, or drug use; and peer affiliations – peers encourage alcohol use, peers use alcohol, peers use marijuana. Using a stepwise regression, variables from each cluster were entered into the analysis for each of the three groups: pretest intervention girls, posttest intervention girls, and the comparison group. Table 5 presents a summary of these results.

The results of the regression analyses supported research pointing to risky behaviors as predictors of sexual behaviors. In the pre-intervention girls, both alcohol and marijuana use were significant predictors of sexual activity ($F(2,236) = 14.53$, $p < 0.001$), with a coefficient of determination (R^2) of 0.102. For the post-intervention girls, tobacco, alcohol, and marijuana use were all significant predictors of sexual activity ($F(3,183) = 25.05$, $p < 0.001$), with a R^2 of 0.36. Within the comparison group, only tobacco appeared as a significant predictor of sexual activity ($F(1,242) = 13.72$, $p < 0.001$), with a R^2 of 0.054.

Data related to girls' perceptions of self, including self-efficacy measures revealed an interesting pattern. First, none of the self-image variables were predictors for the comparison group but did serve as predictors for both the pretest and posttest intervention group. For the pre-intervention girls, being able to solve problems without help was a predictor of sexual activity ($F(1,223) = 6.67$, $p = 0.01$), with a R^2 of 0.029. For post-intervention girls, the

predictors included feeling sad and depressed, being able to solve problems, and spending time with girls ($F(3,176) = 4.20$, $p < 0.001$), with a R^2 of 0.067.

Communication with adults was only a significant predictor in pre-intervention girls where talking with parents was a significant predictor of sexual activity ($F(1,230) = 6.87$, $p < 0.01$), with a R^2 of 0.029. Perceptions of parental involvement appeared only as a significant predictor of sexual activity in the post-intervention group. Specifically, perceptions of how parents would react after learning of alcohol or marijuana use were significant predictors ($F(2,177) = 10.12$, $p < 0.001$), with a R^2 of 0.113.

One of the most interesting significant results arose from the peer affiliation data. Neither the pretest nor the posttest intervention group showed significant predictive effects from peer affiliations. However, the comparison group did. For the comparison group, peers using alcohol or marijuana were significant predictors of sexual activity ($F(2,239) = 16.74$, $p < 0.001$), with a R^2 of 0.123. This result may be the most telling in that the *Too Young For Two* (TYFT) programming may decrease exposure to and influence by deviant peer groups.

Conclusion

There are limitations to the data and study reported here. First, an obvious limitation to the data is the lack of matched pre- and post-test samples. While there is no theoretical reason to believe that unmatched samples would differ from a matched pre- and post-test sample, it is a clear limitation that could lead to contradictory data. Yet, even studies with matched pre- and post-samples have had to reconcile the appearance of contradictions in the data (e.g., teens claiming to be active in pre-test but never active in post-test report). One other limitation comes

from the cluster sampling used in the comparison sample. While the clusters were selected

randomly, it does not represent a simple random sample or individual random assignment to the

comparison group.

Another concern arises from the fact that the intervention and comparison groups did not

match at the beginning of the study. Contrary to the hypothesis that they would not differ on

significant variables, they did. The intervention group girls differed on two significant

demographic variables that could contribute to the overall at-risk status of the girls. Yet, further

analysis of one of the variables – ethnicity, failed to reveal any significant effects. Further, the

differences between intervention group and the comparison group placed the intervention girls in

a higher at-risk status than the comparison group. This difference between the groups at the

onset makes the data more compelling in that the intervention group did not increase their

engagement in risky behaviors such as initiating early sexual activity and using chemical

substances.

An additional concern arises from the attrition rates from the intervention group. The

current study did not attempt to follow-up or analyze the profiles of the attrition group. An

important future direction would include analysis of girls leaving the program to examine

possible selection biases arising in the population remaining in the program. Another important

future direction would be to follow the comparison group for post-hoc testing to compare

profiles of risky behaviors over time for girls who did not participate in the program. Lastly, a

longitudinal study of both the intervention groups and comparison groups is necessary to

document the sustainability of any program effects.

The data shown here present a picture of a program that on the surface is enjoying only modest success. Closer examination of the pattern of results reveals a greater success story. First, it cannot be understated that the intervention group of girls was identified as most at-risk for an adolescent pregnancy and referred to the program for intervention. Second, the difference in the demographic background of the intervention girls from the comparison may place them at greater risk. The intervention group had a much higher proportion of girls in non-traditional households. Third, contrary to the hypothesis that the two groups of girls would be similar on the risk-taking variables prior to intervention, they were not. The intervention group already had statistically significantly higher numbers on substance use. While the numbers of girls in this age group using substances is low, there were significantly more girls in the intervention group who had already tried tobacco and marijuana. Further, the intervention group indicated that their parents or caregivers would not be as upset about any substance use as did the comparison group. Research has shown that parental involvement can serve as a protective factor in sexual behaviors as well as other risky behaviors. Yet, the girls entering the program are coming from homes where the girls perceive low parental involvement or concern about risky behaviors. Thus, the perceived attitudes of parents toward substance use added to the apparent risk for the intervention groups. It is important to note that the data on parental involvement focused upon the perceptions of the girls. While parents may differ in their own perceived level of involvement, it could be argued that when examining the impact on pre and early adolescent girls, it is their perception of parental involvement that affects behavior. Thus, before even starting the Too Young For Two program, the intervention girls presented an interesting

challenge, as they are vastly different from the comparison group before starting the intervention.

The *Too Young For Two* program has managed to stabilize a group of at-risk girls in sexual behaviors and other forms of risk-taking. Analyses of the pretest to posttest data revealed no significant effects between the two groups. It is critical to note that the absence of effects between the pretest and posttest intervention groups is noteworthy. A significant effect between those groups could denote either a significant increase or decrease in an undesirable or desirable behavior. Therefore, while some of the desirable behaviors did not increase, neither did any of the negative behaviors. With the absence of change in the posttest intervention girls, the programming stabilized their behavior, preventing them from engaging in more risk-taking behaviors.

The regression analyses performed on each of the three groups also illuminate the risk factors related to sexual behaviors. The analyses examined known clusters of risk factors, finding support for the link between substance use behaviors and sexual behaviors. Interestingly, while tobacco use appeared as a predictor in all three groups, the other two substances (alcohol, marijuana) did not. The consistent appearance of tobacco is fitting for the age group being studied. Of the three substances, tobacco is the most likely to have been tried by this age group.

Among the self-image variables, the time spent with girls became a significant predictor in the posttest intervention group. The data suggest that girls who become sexually active are spending less time with other girls, and presumably more time with the opposite sex. Girls spending time with other girls are more likely to remain abstinent. These results are consistent

with research pointing to time spent with the opposite sex and particularly the presence of a steady boyfriend/girlfriend as predictors of sexual initiation [15]. In addition, solving problems without assistance, a measure of self-efficacy, was significant in both pretest and posttest intervention girls. The data indicate that perceived ability to solve problems without help is linked with abstinence.

There was a marked change in perceptions of parents' response to substance use in posttest girls as a predictor of sexual activity. For posttest girls, the perception that their parents would not be upset about alcohol use was a significant predictor of sexual activity. This data would support the existing literature stressing the attitudes and involvement of parents as important contributors to abstinence in adolescence.

The most critical results came from analyses of peer affiliations as a function of sexual activity. Neither the pretest nor the posttest intervention groups showed peer behaviors as a significant predictor of sexual activity. However, the comparison group did. In fact, peers using alcohol or marijuana were significant predictors of sexual activity in the comparison group. This difference between the comparison group and both the pretest and posttest groups highlights the value of the TYFT program. Peer affiliations can significantly impact whether adolescents become sexually active or engage in other risky behaviors. Yet, the intervention group was not affected by such peer behavior.

The combination of the positive effects of spending time with other girls in conjunction with the absence of peer effects on the intervention group powerfully illustrates the impact of the programming. This single gender program model gives pre and early adolescent girls the time, the skills, and the training to abstain from negative behaviors regardless of other risk factors in

their background. Given the plethora of negative factors potentially increasing the risk of an at-

risk group, the stabilization of the pretest group to posttest results and the fascinating pattern of

predictors for the different groups paint a picture of a program that has subtly altered the

trajectory of development for a group of at-risk girls.

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Table 1

Participant Groups, Age & Grade Averages

Group	Program Year	n	Grade Mean	Age Mean
Intervention Pre	Fall '01	69	5.30	10.60
Intervention Pre	Fall '02	65	5.49	11.06
Intervention Pre	Fall '03	107	5.34	10.66
Total & Mean Pre		241	5.37	10.75
Intervention Post	Spring '02	56	5.09	11.00
Intervention Post	Spring '03	65	5.29	11.03
Intervention Post	Spring '04	69	5.32	11.13
Total & Mean Post		190	5.24	11.06
Comparison	Fall '01	35	6.97	12.43
Comparison	Fall '02	102	5.36	10.69
Comparison	Fall '03	109	5.51	10.94
Total & Mean		246	5.66	11.05

Table 2

Participant Demographic Comparisons

Demographic	Intervention Group	Comparison Group
% White	50%	76%
% African-American	4%	1%
% Asian	0.5%	0.4%
% American Indian	32%	13%
% Hispanic	4%	1%
% Other	1%	9%
% in two parent household	39%	67%
Average size in home	4.13	4.34

Table 3

Comparisons of Pretest to Posttest and Pretest Intervention Group to Comparison Group (Means and p-values)

Variable	Intervention Group (Pre) n = 241	Intervention Group (Post) n = 190	Pre to Post p-value	Comparison Group n = 246	Comparison Vs Intervention p-value
Tobacco Use	0.22	0.15	0.321	0.09	0.030*
Alcohol Use	0.15	0.10	0.370	0.13	0.838
Marijuana Use	0.15	0.07	0.189	0.04	0.019*
Sex	0.07	0.05	0.541	0.12	0.389
Bad touch	0.18	0.26	0.221	0.23	0.435
Peers Encourage Alcohol use	3.41	3.37	0.655	3.43	0.685
Peers Use Alcohol	3.38	3.26	0.171	3.33	0.578
Peers Use Marijuana	3.40	3.33	0.745	3.37	0.668
Parents Learn of Alcohol Use	1.46	1.47	0.911	1.28	0.006**
Parents Learn of Marijuana Use	1.45	1.43	0.745	1.19	0.001**
Parents Learn of Drug Use	1.39	1.37	0.837	1.16	0.001**
Talk to Parents	1.51	1.47	0.611	1.51	0.975
Talk to Adults	1.84	1.81	0.735	2.03	0.064
Feel Sad & Depressed	3.38	3.46	0.548	3.67	0.008**
Believe They Are A Good Person	1.62	1.68	0.539	1.75	0.163
Spend Time With Girls	1.76	1.75	0.872	1.67	0.260
Solve Problems Without Help	1.86	1.84	0.845	1.76	0.293

*p<0.05; **p<0.01

Table Notes

Data for tobacco use, alcohol use, marijuana use, sex, and bad touch are frequency data.

Data for peers encouraging or using substances, talking to parents or adults, spending time with girls, and

solving problems are scaled with 1 = yes, 2 = sometimes, 3 = not sure, 4 = no.

Data on parents learning of substance use are scaled with 1 = extremely upset to 4 = not concerned.

Data on belief that one is a good person is scaled with 1 = strongly agree to 5 = strongly disagree

Table 4

ANOVA Table for Pre-Intervention Girls Vs Comparison Group Girls (Significant Results Only)

Variable		df	MS	F	p
Tobacco Use	Between	1	2.08	4.71	0.030*
	Within	483	0.44		
Marijuana Use	Between	1	1.56	5.55	0.019*
	Within	483	0.28		
Parents Learn of Alcohol Use	Between	1	3.96	7.58	0.006*
	Within	473	0.52		
Parents Learn of Marijuana Use	Between	1	8.06	17.74	0.001**
	Within	473	0.45		
Parents Learn of Drug Use	Between	1	6.35	16.00	0.001**
	Within	473	0.40		
Sad & Depressed	Between	1	9.51	7.04	0.008**
	Within	471	1.35		

*p<0.05; **p<0.01

Table 5

Regression Analyses Predicting Sexual Activity

Variables	Pre Intervention					Post Intervention					Comparison				
	Step	B	ß	SE B	R^2adj	Step	B	ß	SE B	R^2adj	Step	B	ß	SE B	R^2adj
RISK-TAKING		n = 239					n = 187					n = 244			
Tobacco Use						2	0.19	0.28	0.36	0.28**	1	0.28	0.23	0.52	0.05**
Alcohol Use	2	-0.45	-0.63	0.44	0.10**	1	0.44	0.47	0.36	0.28**					
Marijuana Use	1	0.54	0.80	0.44	0.10**	3	-0.27	-0.27	0.36	0.28**					
SELF-IMAGE		n = 225					n = 180								
Sad & Depressed						1	-0.06	-0.16	0.42	0.24*					
Time With Girls						3	.08	0.16	0.42	0.24*					
Solve Problems	1	0.08	0.17	0.46	0.03**	2	-0.07	-0.16	0.42	0.24*					
COMMUNICATION		n = 232													
Talk With Parents	1	0.07	0.17	0.47	0.03*										
PARENTAL INVOLVEMENT							n = 180								
Parents Learn of Alcohol Use						1	0.30	0.58	0.41	0.09**					
Parents Learn of Marijuana Use						2	-0.30	-0.56	0.41	0.09**					
PEER AFFILIATION												n = 242			
Peers Use Alcohol											1	-0.37	-0.60	0.51	0.12**
Peers Use Marijuana											2	0.21	0.34	0.51	0.12**

*p<0.05; **p<0.01*