

**BABY THINK IT OVER®:  
USING ROLE-PLAY TO PREVENT TEEN PREGNANCY**

**Jennifer W. Out and Kathryn D. Lafreniere**

ABSTRACT

This study examined the effectiveness of Baby Think It Over® (BTIO; Jurmaine, 1994), an infant simulation program that seeks to modify attitudes toward teen pregnancy and teen parenting. As in the study by Saltz, Perry, and Cabral (1994), the premise was that teens engage in unprotected sex because of a personal fable concerning pregnancy: "It can't happen to me." It was expected that participation in BTIO, a form of role-play, would encourage teens to acknowledge their own personal vulnerability to an unplanned pregnancy, and provide them with some insight into the experience of adolescent parenting. One hundred fourteen eleventh-grade students participated. After two to three days' experience with BTIO, teens in the intervention group were more likely to accurately assess their personal risk for an unplanned pregnancy than were teens in the comparison group. Qualitative analyses revealed that teens in the intervention group were significantly more likely to produce concrete examples of activities and consequences related to child-rearing than were teens in the comparison group. Findings of this study are discussed from the perspective of the health belief model (Rosenstock, 1974), and suggestions for further research with BTIO are made.

In the last two decades, health professionals working with adolescents have increased their efforts at both designing and implementing interventions aimed at preventing teen pregnancy. Despite their efforts, the rate of teen pregnancy in Canada has been rising (Wadhwa & Millar, 1997). In 1995, the pregnancy rate for Canadian females aged 15 to 19 years was 45.4 per 1,000 (Singh & Darroch, 2000). Further, although there has been a recent downward trend in pregnancy rates among American adolescents, the United States continues to have one of the highest rates of any Western industrialized nation. The 1996

The authors gratefully acknowledge the assistance of Sherry Bergeron in collecting the data. The authors also wish to thank Stewart Page and Janice Drakich for their insightful comments on earlier drafts of this paper.

Jennifer W. Out, Department of Psychology, University of Windsor, Windsor, Ontario, Canada.

Reprint requests to Kathryn D. Lafreniere, Department of Psychology, University of Windsor, 401 Sunset Avenue, Windsor, Ontario, Canada N9B 3P4. Electronic mail may be sent to [lafren1@uwindsor.ca](mailto:lafren1@uwindsor.ca).

pregnancy rate for American females aged 15 to 19 years was 83.6 per 1,000 (Singh & Darroch, 2000).

Concern over such high pregnancy rates has prompted a renewed interest in the development of effective interventions to reduce teen pregnancy. Most programs designed to prevent adolescent pregnancy focus on one of three approaches: sex education, encouraging sexual abstinence, or increasing the availability of contraception (Saltz, Perry, & Cabral, 1994).

Despite the high hopes of health educators, there is conflicting evidence regarding the efficacy of sex education programs in reducing teen pregnancy rates. In a review of sex education data, Stout and Rivara (1989) concluded that school-based programs had little or no effect on sexual activity, contraceptive use, or teen pregnancy rates.

Programs advocating sexual abstinence also appear to fare poorly. Kirby, Korpi, Barth, and Cagampang (1997) reviewed the Postponing Sexual Involvement Curriculum (PSI), a widely used program in American middle schools that is intended to delay the onset of sexual activity by helping students to identify social pressures that encourage sexual activity and by teaching students specific skills to resist those pressures. A sample of 10,600 youths from schools and community organizations in California participated in the study. The researchers found no significant differences in pregnancy rates or contraceptive use between students who took part in the PSI program and those in the control group.

Kirby, Waszak, and Ziegler (1991) reviewed six American school-based clinics that provided a range of medical and counselling services to adolescents. The researchers found that although the school-based clinics had varying effects on contraceptive use, none of their clinics had a significant effect on school-wide pregnancy rates. These findings suggest that the provision of contraceptives alone is not sufficient to decrease pregnancy among sexually active adolescents.

Some researchers have argued that many of the current programs aimed at preventing teen pregnancy are largely ineffective because they fail to take into consideration the developmental characteristics of adolescent thinking. Gordon (1990) suggested that elements of Piaget's stage of formal operational reasoning (Inhelder & Piaget, 1958, 1969) can be used to help understand adolescent contraceptive behavior. During this stage, adolescents not only develop the ability to think in a hypothetico-deductive manner, they also begin to engage in perspective-taking. According to Gordon, problems with perspective-taking may be largely responsible for adolescents' failure to use contraception. Teens who demonstrate difficulty imagining themselves as parents

may not consider an unplanned pregnancy to be a potential consequence of unprotected sexual intercourse; nor might they perceive an unplanned pregnancy to be a negative event. Several studies have demonstrated that adolescents often underestimate the demands involved in parenting and tend to perceive minimal negative social consequences associated with a teen pregnancy (Henderson, 1980; Holden, Nelson, Velasquez, & Ritchie, 1993; Redmond, 1985; Smith, Nenney, Weinman, & Mumford, 1982). Hacker, Amare, Strunk, and Horst (2000) found that more than one-third of the female students in their study thought that education about the realities of parenting would help to prevent teen pregnancy. The findings of these studies suggest that interventions that increase perspective-taking skills and provide information about the demands involved in parenting may be more effective than traditional programs in preventing teen pregnancy.

The present study was designed with research by Saltz et al. (1994) in mind. They employed role-play as a technique to challenge adolescents' personal fable of invulnerability: "it can't happen to me." According to Saltz et al., research has demonstrated that role-play can be a useful tool for producing attitude change by increasing perspective-taking skills, personalizing abstract information, and challenging risk denial.

In their study, Saltz et al. assigned ninth-grade students to one of three conditions: (a) video role-playing group (adolescents engaged in role-play concerning teens involved in pregnancy dilemmas, and videotaped this role-play), (b) video viewing group (adolescents watched the videos prepared by their classmates in the video role-play group), and (c) control group (adolescents did not participate in either of the previously mentioned groups). Saltz et al. predicted that adolescents who engaged in role-play would be the most likely of the three conditions to express positive attitudes toward abstinence before marriage and would endorse the use of contraceptives for teens who are sexually active. It was found that both role-playing the consequences of teen pregnancy and watching friends role-playing significantly increased favorable attitudes toward abstinence in adolescent girls, but did not significantly change attitudes toward contraceptive use.

Saltz et al. also reported an important unexpected finding. Adolescents in their study were permitted to develop and use their own themes for the role-play. Despite instructions to develop stories concerning the consequences of teen pregnancy, not one was concerned with events taking place after the period of first discovering the pregnancy, such as caring for an infant. Saltz et al. suggested that these issues were completely outside the time frame conceptualized by the teens in their study.

The purpose of the present study was to examine an intervention aimed at encouraging the adolescent to acknowledge his or her own personal risk for involvement in an unplanned pregnancy, as well as prompting him or her to consider the types of commitments involved in adolescent parenting. In 1994, the pregnancy rate in the Windsor and Essex County area among girls aged 19 years and younger was 52.1 per 1,000, compared with the Ontario average of 39.6 per 1,000 (*Ontario Live Births Database*, 1997). In an effort to reduce the rate of adolescent pregnancy in the Windsor area, nurses at the city's Teen Health Centre have implemented a program called Baby Think It Over® (BTIO; Jurmaine, 1994). This program involves the use of infant simulators—lifelike dolls that allow adolescents to role-play the responsibilities involved in parenting. Strachan and Gorey (1997) investigated the impact of BTIO on adolescents' attitudes and beliefs about what their future might be like as teen parents; after three days with the dolls, 90% of the sample scored higher on a measure of realistic parenting expectations than did the average adolescent in the comparison group.

Perceived susceptibility and perceived severity are two key constructs of the health belief model (Herold, 1983; Rosenstock, 1974) expected to be influenced by experience with BTIO. According to this model, adolescents will be motivated to use contraception or to abstain from sexual activity only when they perceive that they are susceptible to being involved in an unplanned pregnancy and only if an unplanned pregnancy is perceived to be a serious negative consequence of unprotected intercourse. It was expected that participation in BTIO, as a form of role-play, would encourage teens to acknowledge their personal vulnerability to an unplanned pregnancy as well as provide them with some insight into the experience of adolescent parenting.

The intervention group for the present study consisted of students enrolled in parenting classes at two high schools. The comparison group consisted of students enrolled in physical education or geography classes at the same two schools. It was hypothesized that adolescents in the intervention group would report feeling more personally susceptible to an unplanned pregnancy than would those in the comparison group. It was also expected that based on their experience with the infant simulators, adolescents in the intervention group would form more negative attitudes toward an unplanned teen pregnancy than would those in the comparison group. It was believed that adolescents with negative views regarding teen pregnancy would have more favorable attitudes toward abstinence and the use of contraception than would adolescents with neutral or positive attitudes toward teen preg-

nancy. Finally, it was expected that adolescents in the intervention group would be more likely to provide concrete examples of the demands involved in caring for an infant than would those in the comparison group.

#### METHOD

One hundred fourteen eleventh-grade students (24 males, 90 females) completed pre- and posttest measures assessing attitudes, behaviors, and knowledge related to contraception and fertility. They ranged in age from 14 to 19 years, with a mean age of 16.2 years ( $SD = 1.02$  years). They were divided into intervention and comparison groups, consisting of 53 students and 61 students, respectively. Students in the intervention group were assigned specific dates, ranging from a minimum of two days and two nights to a maximum of three days and three nights (to accommodate weekends), during which time they assumed responsibility for the care of the simulated infant. Prior to receiving the baby doll, students received detailed instructions (both verbally and in print) regarding care of the doll.

#### *Materials and Measures*

*Baby Think It Over*<sup>®</sup>. Six infant simulators developed by Rick Jurmaine (1994), an aeronautics engineer, were used in the study. Each 20-inch vinyl doll weighed seven to eight pounds and contained a battery-operated microcomputer that simulated an infant's realistic cry at random intervals of 15 minutes to 6 hours, 24 hours a day. Using an electronics box, it was possible to program the baby dolls to have one of three temperaments: easy, normal, or cranky. Easy babies "slept" from 3 to 6 hours at a time, normal babies slept from approximately 1 to 4 hours at a time, and cranky babies slept from 15 minutes to 3 hours at a time before requiring care.

The doll cried for several reasons. If the doll was placed in any position other than on its back, on its side, or seated upright, it cried. Unstoppable crying for about 30 seconds resulted if the doll was handled roughly. The doll also cried when it required care ("feeding" or "comforting"). Feeding demanded that the teen insert a magnetic probe into the doll's back, holding it in place for up to 35 minutes. The probe was attached to a tamper-proof hospital bracelet that was worn on the teen's wrist.

Rough handling caused a red light on the electronics box to blink; neglect caused a yellow light to blink. The microcomputer monitored

the teen's responses to the baby doll by recording instances of rough handling and neglect, as well as total time crying.

*Questionnaire.* A questionnaire containing several measures was used to assess attitudes, behaviors, and knowledge related to contraception and fertility, and was administered during both the pretest and posttest sessions of the study. Attitudes toward teen pregnancy and contraception, as well as perceived susceptibility to an unplanned pregnancy, were assessed using the Health Belief Model Approach to Adolescents' Fertility Control (Eisen, Zellman, & McAlister, 1992). This measure is composed of 35 items, grouped to form 6 subscales: (a) susceptibility to pregnancy/venereal disease, (b) serious affective consequences of pregnancy, (c) serious resolution consequences of pregnancy, (d) benefits of effective birth control use, (e) interpersonal benefits of birth control use, and (f) barriers to birth control use. Attitudes toward abstinence and toward the use of contraception were assessed using a measure created by Saltz et al. (1994), Attitudes Concerning Abstinence from Premarital Sex and Toward the Use of Contraceptives. Sexual experience and use of contraceptives were assessed using the Sexual/Contraceptive Behaviors Questionnaire (Johnson & Green, 1993). A final measure was constructed to investigate attitudes and/or expectations regarding parenting. This measure consisted of a single item: "Try to imagine waking up tomorrow morning to find out that you have suddenly become a parent. Identify ways in which your life might be the same or different."

## RESULTS

Approximately two-fifths (41.2%) of the sample reported being sexually active. Of those who reported being sexually active, 83% experienced first intercourse before the age of 16 years. Approximately one-fifth (19.1%) of those who were sexually active reported using contraception less than half the time.

Reliabilities were calculated for all scales and subscales. Cronbach's alpha was found to range between .60 and .82. Repeated-measures multivariate analyses of variance (MANOVA) were performed to determine if differences existed between the intervention and comparison groups on any of the dependent measures across both session 1 (pretest) and session 2 (posttest). The first MANOVA was performed on the six subscales assessing adolescents' fertility control. Significant effects were obtained for group,  $F(6, 107) = 3.76, p < .01$ , Hotelling's  $T^2 = .20$ ; session,  $F(6, 107) = 2.60, p < .05$ , Hotelling's  $T^2 = .15$ ; and

group by session interaction,  $F(6, 107) = 3.55, p < .01$ , Hotelling's  $T^2 = .20$ . A post hoc repeated-measures analysis of variance (ANOVA) revealed that, at session 2, the intervention group scored significantly higher on the susceptibility subscale than did the comparison group,  $F(1, 112) = 17.88, p < .001$ . Adolescents in the intervention group ( $M = 12.47, SD = 1.67$ ) rated themselves as being significantly more susceptible to an unplanned pregnancy compared with adolescents in the comparison group ( $M = 10.79, SD = 2.47$ ). No significant differences were noted for the five other subscales.

A second repeated-measures MANOVA was performed on the two subscales assessing attitudes toward both abstinence and the use of contraception. No significant effects were obtained for group, session, or the group by session interaction.

Pearson correlation coefficients were calculated for each pair of dependent measures. Initially this was done separately for the intervention and comparison groups. Since they did not differ globally with respect to these correlations, the groups were pooled and Pearson correlation coefficients were calculated for the entire sample as a single group. Susceptibility was found to be positively associated with attitudes toward abstinence during both sessions 1 and 2 ( $r = .42, p < .001$ , and  $r = .25, p < .01$ , respectively), such that adolescents who reported feeling more personally susceptible to an unplanned pregnancy also reported having more favorable views regarding abstinence from premarital sex. Similarly, during session 1, adolescents who reported feeling more personally susceptible to an unplanned pregnancy also reported having more positive attitudes toward the use of contraception ( $r = .26, p < .01$ ).

Across both sessions 1 and 2, a significant negative association was found between the perceived benefits of contraceptive use and attitudes toward abstinence ( $r = -.41, p < .001$ , and  $r = -.32, p < .001$ , respectively), such that teens with positive views concerning abstinence tended to perceive fewer benefits associated with contraceptive use than did teens with more negative views. There was no significant difference across sessions in the relationship between these variables for sexually experienced teens and their counterparts who were not sexually experienced.

During session 1, but not session 2, a significant positive relationship was found between perceptions of the severity of resolution consequences of an unplanned teen pregnancy and attitudes toward abstinence ( $r = .42, p < .001$ ), such that teens who perceived there to be serious resolution consequences with an unplanned pregnancy also tended to hold more positive attitudes toward abstinence from premarital sex.

Finally, for both session 1 and 2, a negative association was observed between perceptions of the presence of barriers to effective contraceptive use and attitudes toward abstinence ( $r = -.45, p < .001$ , and  $r = -.31, p < .001$ , respectively), such that teens who perceived there to be a number of barriers to effective contraceptive use also tended to hold more positive attitudes toward abstinence from premarital sex.

### *Qualitative Findings*

During both session 1 and 2, adolescents were asked the following question: "Try to imagine waking up tomorrow morning to find out that you have suddenly become a parent. Identify ways in which your life might be the same or different." Responses were classified into four categories: child-rearing consequences (e.g., "I would have to change its diapers and get up at night when it cries"), educational consequences (e.g., "It would be hard to study at school during the day because I would be so tired from taking care of the baby"), economic consequences (e.g., "I would have to find a job to support the baby and to buy it all the things it would need"), and social consequences (e.g., "If I had a baby, I would not have any time to go out and party with my friends"). Response frequencies were tabulated for each category by group (intervention, comparison).

Chi-square analyses revealed no significant differences between groups for three of the categories: educational consequences, economic consequences, and social consequences. However, during session 2, adolescents in the intervention group produced significantly more examples of child-rearing consequences than did those in the comparison group,  $\chi^2(1, N = 114) = 10.38, p < .01$ . During session 1, 17% of the intervention group and 13.1% of the comparison group listed at least one example of a child-rearing activity that would occur as the result of a teen pregnancy. During session 2, this increased to 32.1% for the intervention group but decreased to 8.2% for the comparison group.

## DISCUSSION

It was hypothesized that adolescents in the intervention group would report feeling more personally susceptible to an unplanned pregnancy than would those in the comparison group. This hypothesis was supported. After two to three days' experience with BTIO, adolescents in the intervention group were more likely to accurately assess their personal risk for an unplanned pregnancy than were those in the comparison group. Adolescents in the intervention group were more likely

than those in the comparison group to acknowledge that failure to use contraceptives during intercourse significantly increases one's personal risk for becoming involved in an unplanned pregnancy.

It was also expected that based on their experience with the infant simulators, adolescents in the intervention group would form more negative attitudes toward an unplanned teen pregnancy than would those in the comparison group. No evidence was found to support this hypothesis. Across sessions, both groups reported having quite negative attitudes toward an unplanned pregnancy. The failure of BTIO to significantly increase adolescents' scores may have been due to a ceiling effect, in that pretest scores were already close to the upper limits of scores possible on these measures.

It was believed that adolescents with negative views regarding teen pregnancy would have more favorable attitudes toward abstinence and the use of contraception than would adolescents with neutral or positive attitudes toward teen pregnancy. No evidence was found to support this hypothesis. At pretest, both groups already held quite positive attitudes toward abstinence from premarital sex and toward the use of contraception. Once again, the failure of BTIO to significantly increase adolescents' scores may have been due to a ceiling effect, in that pretest scores were already close to the upper limits of possible scores.

Finally, it was expected that adolescents in the intervention group would be more likely to provide concrete examples of the demands involved in caring for an infant than would those in the comparison group. Qualitative analyses revealed that adolescents in the intervention group were significantly more likely to produce concrete examples of activities and consequences related to child-rearing than were those in the comparison group.

Interestingly, no significant differences were found between the comparison and intervention groups in terms of the number of educational, economic, and social consequences of teen pregnancy they listed. Few of the adolescents in either group were able to provide more than one consequence for each of these categories. It is likely that adolescents in the intervention group were exposed to selective aspects of teen parenting, which may have influenced their thinking. For example, becoming actively involved in caring for the baby doll may have made it easier for adolescents to list child-rearing consequences, since these consequences were more immediate. However, long-term consequences, such as educational and economic problems faced by a teen parent, likely remained outside the time frame conceptualized by the adolescents. It appears that, in this respect, the effectiveness of BTIO is limited.

### *Limitations of the Study and Implications for Further Research*

The present study had a few limitations that should be kept in mind when considering the effectiveness of the BTIO program. First, although pregnancy status would be the preferred outcome measure to assess the general efficacy of BTIO, it was not feasible to collect this information over the time period that was available to conduct the study. Therefore, conclusions regarding BTIO's effectiveness at preventing teen pregnancy are limited to attitudinal findings.

Second, it should be noted that the findings cannot be readily generalized to adolescent males, since they made up less than a quarter of the sample. Further, parenting and/or sex education classes at both schools were not required; students had the option of enrolling in them to fulfill the social science requirement. It is possible that a self-selection bias existed, such that adolescents enrolled in the parenting/sex education classes were more interested in these issues than were those who opted against taking these classes. Thus, future research related to BTIO and similar interventions should involve more adolescent males, and also be designed in such a way as to determine whether or not they have any unique concerns or attitudes relating to perceived susceptibility to an unplanned pregnancy, perceptions of teen parenting, attitudes toward contraception, and views concerning abstinence from premarital sex. Additionally, research should be aimed at examining the impact of BTIO on adolescents who may not be particularly interested in, or motivated to learn about, teen parenting or issues related to contraception and abstinence.

Finally, previous studies have found that the mere observation of adolescents role-playing the consequences of teen pregnancy was enough to induce some significant attitude changes. In the present study, it was not possible to determine whether or not BTIO had any significant effects on teens who simply observed their classmates caring for the dolls. Although it was not determined how much exposure (as observers) students in the comparison group had to BTIO, it was noted that several students in the intervention group attended classes with students in the comparison group. Future research should be designed in such a way as to segregate the comparison and intervention groups (perhaps by having each at a different school) and to have an additional group that would receive controlled exposure to BTIO.

Educators need to investigate new methods of encouraging adolescents to foresee and understand the long-term educational, economic, and social consequences of teen parenting. For example, information related to teen parenting could be incorporated into the content of other, nonparenting courses: math or economics teachers could assign

students the task of estimating the costs associated with the care of an infant; physical education teachers could focus on the importance of pre- and postnatal fitness; and history and sociology teachers could discuss parenting throughout history and changes in attitudes toward teen pregnancy and/or single-parent families. Using BTIO in conjunction with such lessons could help to personalize both the short-term and long-term consequences of an unplanned teen pregnancy.

## REFERENCES

- Eisen, M., Zellman, G. L., & McAlister, A. L. (1992). A health belief model-social learning theory approach to adolescents' fertility control: Findings from a controlled field trial. *Health Education Quarterly*, 19(2), 249-262.
- Gordon, D. E. (1990). Formal operational thinking: The role of cognitive-developmental processes in adolescent decision-making about pregnancy and contraception. *American Journal of Orthopsychiatry*, 60(3), 346-356.
- Hacker, K. A., Amare, Y., Strunk, N., & Horst, L. (2000). Listening to youth: Teen perspectives on pregnancy prevention. *Journal of Adolescent Health*, 26(4), 279-288.
- Henderson, G. H. (1980). Consequences of school age pregnancy and motherhood. *Family Relations*, 29, 185-190.
- Herold, E. S. (1983). The health belief model: Can it help us to understand contraceptive use among adolescents? *Journal of School Health*, 53, 19-21.
- Holden, G. W., Nelson, P. B., Velasquez, J., & Ritchie, K. L. (1993). Cognitive, psychosocial, and reported sexual behavior differences between pregnant and nonpregnant adolescents. *Adolescence*, 28(111), 557-572.
- Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking*. London: Basic Books.
- Inhelder, B., & Piaget, J. (1969). *The psychology of the child*. New York: Basic Books.
- Johnson, S., & Green, V. (1993). Female adolescent contraceptive decision making and risk taking. *Adolescence*, 28(109), 81-96.
- Jurmaine, R. (1994). *Baby Think It Over*®. (Available from Baby Think It Over® Inc., 2709 Mondovi Road, Eau Claire, WI 54701).
- Kirby, D., Korpi, M., Barth, R. P., & Cagampang, H. H. (1997). The impact of the Postponing Sexual Involvement Curriculum among youths in California. *Family Planning Perspectives*, 29(3), 100-108.
- Kirby, D., Waszak, C., & Ziegler, J. (1991). Six school-based clinics: Their reproductive health services and impact on sexual behavior. *Family Planning Perspectives*, 23(1), 6-16.
- Ontario Live Births Database* [Electronic database]. (1997). Ottawa: Ontario Ministry of Health (Producer and Distributor).
- Redmond, M. A. (1985). Attitudes of adolescent males toward adolescent pregnancy and fatherhood. *Family Relations*, 34, 337-342.
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2, 328-335.

- Saltz, E., Perry, A., & Cabral, R. (1994). Attacking the personal fable: Role-play and its effect on teen attitudes toward sexual abstinence. *Youth and Society, 26*(2), 223-242.
- Singh, S., & Darroch, J. E. (2000). Adolescent pregnancy and childbearing: Levels and trends in developed countries. *Family Planning Perspectives, 32*(1), 14-23.
- Smith, P. B., Nenney, S. W., Weinman, M. L., & Mumford, D. M. (1982). Factors affecting perception of pregnancy risk in the adolescent. *Journal of Youth and Adolescence, 11*(3), 207-215.
- Stout, J. W., & Rivara, F. P. (1989). Schools and sex education: Does it work? *Pediatrics, 83*(3), 375-379.
- Strachan, W., & Gorey, K. M. (1997). Infant Simulator Lifespace Intervention: Pilot investigation of an adolescent pregnancy prevention program. *Child and Adolescent Social Work Journal, 14*(3), 171-180.
- Wadhwa, S., & Millar, W. J. (1997). *Health Reports, 9*(3), 9-17. Ottawa: Statistics Canada (Cat. No. 82-003-XPB).