Effects of a Replication of a Multicomponent Model for Preventing Adolescent Pregnancy In Three Kansas Communities

By Adrienne Paine-Andrews, Kari Jo Harris, Jacqueline L. Fisher, Rhonda K. Lewis, Ella L. Williams, Stephen B. Fawcett and Murray L. Vincent

Context: A significant amount of attention has been devoted to the complex issue of teenage pregnancy and to programs for reducing pregnancy among adolescents. Careful evaluations of such programs are needed to ascertain what strategies will be most effective at reducing teenage pregnancy.

Methods: A pretest-posttest comparison group design was used to analyze the effects of a comprehensive multicomponent school and community intervention on estimated pregnancy rates and births among young people in three Kansas communities: Geary County, Franklin County, and selected neighborhoods of Wichita.

Results: There were high levels of program activity in all three communities during the intervention period, including teacher training and sexuality education for students. Survey respondents rated high the project interventions as the extension of school-linked clinic hours to accommodate student schedules and support groups established in middle schools. Between 1994 and 1997, the proportions of adolescents reporting that they had ever had sex decreased significantly among sixth and 10th graders in Geary County from 51% to 38% among females and from 63% to 43% among males, in Franklin County, males in grades 11 and 12 reported using condoms in 1993 (55%) than had done so in 1994 (38%). Age at first intercourse remained relatively stable in Franklin and Geary counties during the intervention period. The estimated pregnancy rate among adolescents aged 14–17 decreased between 1994 and 1997 in Geary County, while it increased in comparison areas. The estimated pregnancy rates among 14–17-year-olds decreased in both Franklin County and its comparison communities. The birthrate declined both in one target area of Wichita and in its comparison area from 1993–1995 to 1994–1996. Over the same time period, the birthrate increased in a second target area of Wichita, while it decreased in the comparison community.

Conclusions: This evaluation of a comprehensive multicomponent program for adolescent pregnancy prevention contributes to our understanding of this model and its replicability in diverse communities. Ongoing program evaluation is important for developing initiatives and refining strategies so they respond to local conditions.


Annually, more than 800,000 U.S. teenagers become pregnant, one of the highest teenage pregnancy rates of any industrialized country. The majority (53%) of high school students report having had sexual intercourse. Among sexually active adolescents, slightly more than half (54%) report having used condoms and 25% report having used the pill at last intercourse. These behaviors contributed to a birth rate of 56.9 births per 1,000 15-19-year-old females in 1995. The negative outcomes of teenage childbearing for the teenager and her offspring include high rates of school dropout, low-birth-weight infants, poor health and poverty. In addition, teenage childbearing results in considerable financial costs to taxpayers and society.

A significant amount of attention and energy has been devoted to the prevention of teenage pregnancy through, for example, school-based programs to increase condom use, sexuality education curricula, peer support and education, and life-option services. Nevertheless, most interventions have not been carefully evaluated, and many studies are limited by methodological constraints and the absence of scientific rigor. A review of existing studies of sex education curricula, contraceptive access programs and multicomponent programs concluded that simple approaches do not markedly reduce adolescent pregnancy, but that sexuality education, school clinics and access to condoms do appear to reduce sexual activity and that most programs increase knowledge. Although the review found few scientific studies examining the effects of abstinence-only programs, preliminary results suggest that they do not delay the onset of sexual activity or reduce the prevalence of sexual activity. Furthermore, the review concluded that multicomponent community-wide programs show promise in increasing contraceptive use and decreasing pregnancy rates among adolescents.

Adolescent pregnancy is a complex problem with multiple antecedents, and it is not likely that any single intervention will have much effect. In one promising strategy, community members collaborated to deliver multicomponent interventions that address sexual-risk-taking behaviors, social influences and group norms about unprotected sex, and that create hope among adolescents through life skills and youth development opportunities.

A multicomponent approach that includes improving access to health services for adolescents, increasing the role of schools in improving adolescent health and enhancing collaborative relationships among community partners is consistent with policy goals to prevent adolescent pregnancy outlined elsewhere.

Background

From 1993 through 1997, the School/Community Sexual Risk Reduction Replication Initiative worked in three Kansas communities.
munities to replicate the School/Community Model for preventing adolescent pregnancy. An evaluation of this model reported significant reductions in pregnancy rates among 14-17-year-old females in a rural South Carolina county where the program was in effect. A secondary evaluation funded by the Centers for Disease Control and Prevention (CDC) confirmed that the reductions in pregnancy rates were due to the synergistic effects of multiple interventions.

As replicated in Kansas, this multicomponent school and community-based model had broad objectives: to reduce teenage pregnancies, to delay the age of first intercourse and to increase contraceptive use among sexually active teenagers. The primary components were enhanced sexuality education for teachers and parents; comprehensive, age-appropriate sexuality education from kindergarten through 12th grade (K-12); increased access to health services; collaboration with school administrators; use of the mass media; increased awareness and involvement of the entire community in teenage pregnancy prevention; peer support and education; alternative activities for young people; and involvement of the faith community.

To implement the initiative, project staff forged alliances among a variety of community sectors, including school and health department officials, the faith community, the media and local businesses. These connections helped to establish and to modify numerous programs, policies and practices to be consistent with the mission.

Participants and Context
Kansas Health Foundation provided three Kansas communities with approximately $400,000 over four years to reduce the risks associated with adolescent pregnancy. The overall efforts of these three community partnerships are the focus of this report.

* Garry County, Garry County, Kansas, which is adjacent to a large military base, has a population of 30,353; it is 66% white, 23% black, 6% Hispanic and 4% Asian American, with small numbers of Native American residents as well. The median income in 1990 was $24,000. In 1993, Garry County had the second highest estimated teenage pregnancy rate in Kansas (69 pregnancies per 1,000 females aged 14-17).

The lead agency in the program was the county school district. The project was staffed full-time by a project director, a community mobilizer and an office assistant. It also provided direction to the staff, and a financial sustainability committee helped secure resources to support staff salaries and operating costs for the project during the last two years of foundation funding. The primary focus of the project was to promote healthy choices for middle school and high school youth. Staff and volunteers provided alternative activities for young people, peer support groups, sexuality education, peer support groups and contraceptive use at the school-linked clinic.

* Franklin County, Franklin County, Kansas, is a rural, primarily agrarian community. Its 22,000 residents are 97% white, 1% Hispanic and 1% black. The county has 10 distinct towns, four school districts and more than 55 churches. The median income in 1990 was $30,000. The five-year (1989-1993) estimated pregnancy rate of 50 pregnancies per 1,000 females aged 15-19 was higher than the state average.

The lead agency for the project in Franklin County was a satellite office of a regional drug and alcohol prevention center. The project was staffed by a full-time project director, two full-time community mobilizers and a part-time office assistant. An advisory board provided staff with overall project support and with assistance in working with groups that opposed some of the project's goals. The primary focus of the project was on the development of healthy children and families. Staff and volunteers placed great emphasis on sexuality education for youth and parents, peer support programs for males and females, family communication and alternative activities for youth, especially after-school and summer programs.

* Wichita: The third project site was located in a low-income neighborhood of Wichita, Kansas, the largest city in the state, with a population of 304,000. In 1991, Wichita had an adolescent birthrate of 65 births per 1,000 females aged 14-17.

The lead agency, a grassroots community organization, targeted its efforts in two zip code areas in northeast Wichita. These areas were selected due to their high teen-age birthrates and their proximity to the agency. Staff and volunteers also considered the population size of the target areas as compared to that of the South Carolina community where the program model originated and the limited resources that were available to address teenage pregnancy in each area. Staff worked primarily through the agency, four target high schools and two middle schools to involve youth and community members in the project. The project was staffed by one executive director, a full-time coordinator, one full-time community mobilizer and a part-time office assistant. Additional staff also supported specific program activities. The agency's advisory board provided overall support for the project staff. The primary focus of the project was on healthy choices for youth and families. Staff and volunteers placed great emphasis on alternative activities (especially after school and during summer breaks and school holidays), peer support groups for both males and females, sexuality education in the community for youth and parents, life-styles programs (such as mentoring, tutoring and peer leadership), and media attention to problems and solutions associated with adolescent pregnancy.

Support and evaluation teams. Kansas Health Foundation also funded research and evaluation teams at the University of Kansas and the University of South Carolina to support and evaluate the initiative. The Kansas University Work Group on Health Promotion and Community Development provided on-site technical assistance in such areas as program planning, implementation of program components, community development and institutionalization. Researchers in this group designed and implemented the evaluation to provide ongoing feedback on the process and on intermediate outcomes of the initiative, as well as to track more distant (i.e., long-term) outcomes. Evaluation and technical assistance were met regularly with site staff and leadership to discuss progress, to provide assistance and to help celebrate accomplishments. The University of South Carolina provided overall guidance and support for model implementation.

Theory of Change
The theory of change, which provided the context for the community evaluation and intervention, hypothesizes that there is a relationship between the environment and both the program's process (how it functions, for example) and intermediate and more distant outcomes. That is, changes in the estimated pregnancy rate and associated risks and protective factors are associated with implementation of community activities and interventions, such as adjusting clinic hours for students. Finally, appropriate interventions can only occur with an understanding of the community context and with local planning.

Methodology
Dependent Variables
We used several dependent variables to evaluate the initiative's process and its intermediate outcomes and more distant
outcomes. Three process measures were tracked—the importance of project goals, member satisfaction and project implementation (Table 1).

- **Importance of project goals.** To build consensus and to set priorities for changes outlined in the project action plan, community members involved in the initiative completed a paper-and-pencil survey about the project goals. Those surveyed were community members who had participated in project activities or who had served on the project board or a committee, and individuals who project staff wanted to keep informed or who were supportive of the project's goals. The survey listed the potential community and systems changes to be sought by the project. Members were asked to rate the importance of each proposed change as it related to the mission of the initiative—reducing adolescent pregnancy. A five-point Likert scale (with one representing "very unimportant" and five "very important") was used to rate each proposed change.

- **Community member satisfaction.** Researchers used a mailed member satisfaction survey to assess community members' satisfaction with the development and functioning of the project. The survey contained specific questions related to the day-to-day functioning of the project, including leadership, planning, services, community involvement and progress toward accomplishing project goals. Community members rated their satisfaction using a five-point Likert scale (with one representing "very unsatisfied" and five "very satisfied").

- **Project implementation.** Several measures were associated with project implementation and replication, including community actions, media coverage, services provided, community health education, sexuality education provided to students and teachers, and resources generated. A monitoring and feedback system was used to track these measures. Project staff reported events and services to evaluators on monthly log forms, which were then coded and summarized. Evaluators clarified log entries by conducting semi-structured interviews with project staff. Archival records, such as meeting minutes and newspaper articles, were also used to help verify log entries. For 95% of instances of community services and changes, there was an interobserver agreement of 91.4% (Kappa = .893).

We also measured three intermediate outcomes of the initiative—community change, the importance of intermediate outcomes and critical events.

- **Community change.** Community and system changes (new or modified programs, policies, or practices that were consistent with the mission) were tracked to assess implementation of the interventions that would reduce the risk of adolescent pregnancy. Project staff completed and sent monthly event logs to evaluators. Evaluators coded log entries and summarized the data. Semi-structured interviews and archival records (e.g., meeting minutes) were used to clarify and verify information reported in the logs.

- **Importance of intermediate outcomes.** Community members and experts in the field of teenage pregnancy used a paper-and-pencil survey of outcomes to assess the importance of community changes facilitated by the project. Evaluators created a survey listing each community change that had been measured using the monitoring system. Respondents rated the importance of each community change in reducing the risk for adolescent pregnancy. Respon-
purchasing contraceptives in small rural areas.* Staff and leadership also identified media interventions, such as radio call-in shows, billboards and public service announcements, as important.

Services, including health screenings for children, job fairs and meetings of support groups, tended to be among the first steps toward program implementation. There were high levels of project activity initially, although some tapered off over time; this suggests that project staff may have been successful in "handing off" some services to appropriate agencies and individuals in the community, to allow more time for facilitation of community change. Additionally, early services were linked to building credibility in the community.

Each site also provided high levels of community health education activities (54–127 instances) and sexuality education programs to students (7,000–45,000 contacts with students and 400–2,700 hours of instruction). Community health education activities included workshops for parents about talking to their children about sex. Teacher sexuality education also was strong, with university-sponsored graduate-level classes (3–6 semester-long classes) and training sessions (8–13 training sessions per site, varying in length from one-half day to two days). Approximately 100 teachers were trained at each site. Each site implemented weekly educational sessions for students in schools, biannual graduate courses for teachers and numerous workshops for community members. Some teachers participated in more than one course.

Intermediate Outcomes

Community change. During the four-year grant period, each of the three sites facilitated more than 100 community changes (106–139). These included a variety of programs, policies and practices, such as establishing support groups, extending the hours of the school-linked clinic and making referrals to agencies. Increased rates of community change tended to be associated with the hiring of staff, leadership transitions and the completion of action planning. The numbers of community changes shown in Table 2 include all community changes, regardless of whether they were a one-day event or an ongoing policy change.

More Distant Outcomes

In Geary County, students in grades 9–12 completed the ACE in 1994 (N=1,049) and the YRS in 1997 (N=952; the respective response rates were 73% and 68%). In Franklin County, students in grades 9–12 completed the YRS in November 1994 (N=710) and in November 1996 (N=817), with response rates of 68% and 79%. Demographic characteristics of survey respondents remained relatively stable across the assessments in both Geary and Franklin counties.

*Sexual intercourse. In Geary County, students' reports of ever having had sex decreased significantly among females and males in ninth and 10th grades between 1994 and 1997 (Table 3). Among female adolescents, the proportion who had ever had sex decreased from 51% to 38% (χ²=8.781, p=0.03); among males, it declined from 63% to 43% (χ²=16.479, p=0.001). In Franklin County, students' reports of ever having had sex did not decrease.
Table 3. Percentage of students who ever had sex and percentage of sexually active students who used a condom at last intercourse, by gender and grade, according to county and year

<table>
<thead>
<tr>
<th>Measure</th>
<th>Grays County 1994</th>
<th>Franklin County 1994</th>
<th>Grays County 1997</th>
<th>Franklin County 1997</th>
<th>Grays County 1996</th>
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<tr>
<td><strong>EVER HAD SEX</strong></td>
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<tr>
<td>Females Grades 9-10</td>
<td>55.6</td>
<td>36.4*</td>
<td>33.3</td>
<td>40.2</td>
<td>54.1</td>
<td>54.2</td>
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<tr>
<td>Grades 11-12</td>
<td>71.1</td>
<td>44.2</td>
<td>54.1</td>
<td>64.2</td>
<td>59.9</td>
<td>59.3</td>
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<td><strong>MALES</strong></td>
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<td>Grades 9-10</td>
<td>65.2</td>
<td>43.3</td>
<td>29.6</td>
<td>31.1</td>
<td>56.9</td>
<td>54.7</td>
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<tr>
<td>Grades 11-12</td>
<td>65.7</td>
<td>55.5</td>
<td>55.9</td>
<td>64.3</td>
<td>59.9</td>
<td>64.3</td>
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<td><strong>CONDOM USED AT LAST INTERCOURSE</strong></td>
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<tr>
<td>Females Grades 9-10</td>
<td>44.7</td>
<td>45.6</td>
<td>46.6</td>
<td>58.5</td>
<td>46.6</td>
<td>58.5</td>
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<tr>
<td>Grades 11-12</td>
<td>57.6</td>
<td>38.4</td>
<td>36.0</td>
<td>49.3</td>
<td>39.3</td>
<td>49.3</td>
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<tr>
<td><strong>MALES</strong></td>
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<tr>
<td>Grades 9-10</td>
<td>58.2</td>
<td>54.3</td>
<td>38.8</td>
<td>52.8</td>
<td>39.3</td>
<td>52.8</td>
</tr>
<tr>
<td>Grades 11-12</td>
<td>49.1</td>
<td>46.1</td>
<td>39.3</td>
<td>54.7</td>
<td>39.3</td>
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*p < .05

change significantly from 1994 to 1996, except that female adolescents in grades 11 and 12 reported a significant increase in sexual activity, from 54% to 68% (χ²(1) = 7.182, p = 0.007). This increase in reported sexual activity was unexpected, especially since 10th graders reported a higher level of sexual activity than 12th graders (not shown). These changes may have been due to the small number of participants and to an increase in gang activity before the 1996 survey. (Sexual activity with a certain number of partners was part of the initiation into female gangs.)

Condom use. In Franklin County, more males in the upper grades reported using condoms in 1996 (55%) than in 1994 (50%) (χ²(1) = 4.636, p = 0.03). No other changes in condom use in Franklin or Grays County were statistically significant.

* Age at first intercourse. Age at first intercourse remained relatively stable for both Grays and Franklin counties from 1994 to 1996. In Grays County, the proportions who reported that first intercourse took place either at age 14 or at 15 increased slightly among males (from 34% to 36%) and among females (from 35% to 45%) in Franklin County, this proportion decreased slightly among males (from 40% to 34%) and among females (from 57% to 52%).

* Estimated pregnancy rates and births. The pregnancy rates and births estimated for young women aged 14-17 decreased slightly (Table 4). For Grays County, the estimated pregnancy rate decreased from 63 pregnancies per 1,000 females aged 14-17 during 1991-1993 (preintervention) to an average of about 56 per 1,000 from 1994-1996 (during the intervention). During the same time period, the estimated pregnancy rate for Franklin County’s comparison areas increased, from 60 pregnancies per 1,000 to 69 per 1,000.

For Franklin County, the estimated pregnancy rate decreased from an average of 41 pregnancies per 1,000 females aged 14-17 to 37 per 1,000. During the same time period, the estimated pregnancy rate for Franklin County’s comparison areas also decreased slightly, from 39 per 1,000 to 37 per 1,000. Compared with changes in the respective comparison counties, the decreases in Franklin and Grays counties were in the expected direction, but were not statistically significant.

Changes in birthrates were mixed for the two targeted areas in Wichita. The birthrate in Target Area A decreased from an average of nearly 106 births per 1,000 during 1991-1993 to 92 per 1,000 during 1994-1996. The comparison areas for Target Area A also showed a decrease during the same time period, from 91 per 1,000 to 85 per 1,000. The birthrate in Target Area B increased from 56 per 1,000 to 57 per 1,000 during the same time period, while the birthrate in the comparison areas decreased from 50 per 1,000 to 47 per 1,000. Estimated pregnancy rates for all of Kansas increased from 34 pregnancies per 1,000 females aged 14-17 to 38 per 1,000 between the two periods.

Discussion

Overall, the findings from the replication of the school and community model in Kansas were encouraging. We detected slight (though often not statistically significant) decreases in estimated pregnancy rates and birthrates, there were some positive changes in reported behavior, and rates of community and systems change were strong and steady. Further, community satisfaction with the project functioning was high, and changes facilitated by each project were considered important. Each site faithfully addressed model implementation and facilitated positive change on a number of levels. Overall, the projects were well received in their respective communities. Project staff and volunteers introduced programs, practices and policies that had previously not been present in the community.

Project staff used evaluation data to build consensus on a place to begin the intervention, to identify strengths and challenges with project functioning, to set the agenda for future directions of the project and to track implementation and replication of the school and community model. The data helped project staff and leadership to keep steering committees and advisory groups informed of project activities, to respond to community criticism (such as complaints that the sole focus of the project was on sex) and to garner public support for sustaining project efforts once grant funding had ended. The data also showed that the projects focused more on a holistic approach to sexuality and youth development and not just on “mechanics.”

The data helped redirect efforts, when needed. For example, when they broke out community change data by risk factor, the staff at one site realized that they were not implementing many changes related to school performance and began targeting efforts in this area. Data also were used to enhance information that teachers and parents received about the sexuality education provided to students. Site used the Sexuality Information and Education Council of the United States topic areas to show that the majority of sexuality education provided was in the areas of personal skills and relationships and not in the more controversial areas of sexual behavior that the community resisted.

Although each context was unique, project areas exhibited similar patterns of activity. Each had high, steady rates of community change and services provided. Every site implemented sexuality education for teachers, using a variety of meth-

Table 4. Average estimated pregnancy rates and birthrates (and ranges) for females aged 14-17, by intervention and comparison area, according to time period

<table>
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<tr>
<td><strong>Average estimated pregnancy rate</strong></td>
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<tr>
<td>Kansas</td>
<td>34.3 (31.0-36.6)</td>
<td>37.9 (34.7-38.5)</td>
</tr>
<tr>
<td>Grays County</td>
<td>82.9 (65.9-86.9)</td>
<td>58.5 (48.5-62.1)</td>
</tr>
<tr>
<td>Program area</td>
<td>60.3 (54.4-65.9)</td>
<td>59.2 (50.9-67.4)</td>
</tr>
<tr>
<td>Comparison area</td>
<td>46.7 (37.5-58.7)</td>
<td>38.0 (33.0-43.3)</td>
</tr>
<tr>
<td>Franklin County</td>
<td>60.3 (54.4-65.9)</td>
<td>59.2 (50.9-67.4)</td>
</tr>
<tr>
<td>Program area</td>
<td>46.7 (37.5-58.7)</td>
<td>38.0 (33.0-43.3)</td>
</tr>
<tr>
<td>Comparison area</td>
<td>46.7 (37.5-58.7)</td>
<td>38.0 (33.0-43.3)</td>
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Birthrate

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<tr>
<td>Wichita Target Area A Program area</td>
<td>105.5 (99.0-112.1)</td>
<td>91.6 (74.3-113.1)</td>
</tr>
<tr>
<td>Program area</td>
<td>81.4 (73.0-90.1)</td>
<td>79.5 (66.5-93.3)</td>
</tr>
<tr>
<td>Comparison area</td>
<td>58.0 (51.7-67.3)</td>
<td>55.2 (48.8-61.0)</td>
</tr>
<tr>
<td>Wichita Target Area B Program area</td>
<td>46.8 (41.5-53.9)</td>
<td>45.7 (41.5-53.9)</td>
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<tr>
<td>Program area</td>
<td>46.8 (41.5-53.9)</td>
<td>45.7 (41.5-53.9)</td>
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Notes: See Table 1 for the definition of estimated pregnancy rate and interv...
ods, and experienced similar difficulties with groups opposed to some of the project's goals.

Reimplementing the school and community model presented several challenges. Although communities had accepted grant funds for this purpose, there was some resistance to the idea of a complete replication since each community was quite different from the rural communities where the model was first implemented. This resulted in many conversations about the core components of the model, the rationale for implementing particular components and strategies for doing so.

Because each community was different, it was important to recognize and acknowledge that some minor adaptations of the model were necessary. For example, in South Carolina, the originator of the model taught most of the graduate education courses. Since the same instructor could not teach the graduate courses in the replicating communities, the core content, topics, and emphasis differed, both within Kansas and South Carolina and among the three Kansas communities.

Differences in lead agencies also complicated program implementation. In contrast, the grassroots organization was the lead agency and had the ability to arrange culturally appropriate workshops and activity sessions in an inner-city neighborhood than to arrange annual surveys of youth sexual activity in the public schools. In addition, Kansas represented a different political and social climate at the time of program replication than that which existed when the model was developed. In the political and social conditions of the early 1980s, staff could seek Medicaid funding for health services and, initially, worked with the schools to increase sexuality education. Currently, it is more acceptable to work with families and with varied sectors of the community than it is to place the sole burden of sexuality education with the schools. In addition, with the new focus on managed care and containing rising health care costs, seeking Medicaid funding was not a viable option.

The controversial nature of some strategies for preventing adolescent pregnancy (e.g., increasing access to contraceptives for young people and providing comprehensive sexuality education) also made implementation and replication of some components of the model particularly difficult. While experience in working with organized opposition was required, people with such experience were not always on hand at both the community and support team levels.

Evaluating multicomponent school- and community-based projects is a complex task. First, the effects of comprehensive interventions that seek to address broad health outcomes (such as adolescent pregnancy) are often delayed; thus, it may be difficult to establish a causal link between interventions and changes in health outcomes. Because of this, it is important to identify and track intermediate outcomes, such as community change. Continued analysis of community changes facilitated by similar initiatives will help inform the working hypothesis or theory of action. Community changes that are of sufficient amount, intensity and duration that reach at-risk groups are related to positive changes in more distant outcomes.

Second, the monitoring system used to track the intermediate outcomes captures only events that were facilitated and reported by key informants (usually paid project staff). In addition, completing monthly logs takes time, and sometimes staff members are too busy implementing programs to complete logs as thoroughly as needed. Also, mobilization and change that occur as a result of earlier community efforts may not be captured. For example, a number of new programs were created at all three sites, and some programs that were then taken on by others in the community may have resulted in additional community changes. For example, a support group for teenage mothers initiated by the project evolved into a mentoring program for teenage mothers and a preschool program for their children supported by local hospital staff.

Further, having staff complete logs may influence the level of activity and accomplishment at each site. It is unclear how well the effects of the projects would generalize to a project not collecting monthly monitoring information. Finally, community changes were not weighted, one-day events and ongoing activities were reported in the same manner on graphs and charts. However, during site consultation, staff were encouraged to seek longer-term and potentially more powerful changes in communities and systems. Future research with community initiatives will explore strategies for weighting community changes and presenting data to assist with local decision-making.

Third, although this evaluation monitored an independent variable, it is difficult to estimate the intensity and reach of the intervention. The dose-response relationship is unclear. We do not know how many students came in contact with each component or community change. The monitoring system did not identify the number of people affected or mobilized by an event. Although the "dose" of the independent variable is not possible to estimate at this time, reanalysis of the monitoring data suggests that about one third to one half of the community changes facilitated in each community are ongoing.

Fourth, although the surveys of goals, member satisfaction and importance provided key information to project staff and leadership, the surveys were not sent to random samples of respondents. They were sent to community members identified by staff as active in the initiative. The results, therefore, may have been more positive than if the surveys had been sent to random samples of community members.

Our findings are also limited by a lack of comparison for intermediate outcomes and behavior measures. Because of the intensive nature of the log monitoring, we could not get comparison outcome measures for intermediate outcomes. Further, not all Kansas communities collect data on youth-reported sexual behavior, knowledge and attitudes. Consequently, the Kansas youth data could not be disaggregated, and there were no comparison communities for the self-reported behavior.

Annual estimated pregnancy rates and birthrates did not account for annual changes in population. In addition, behavior data on sexual activity were self-reported. However, CDC-recommended consistency checks for the YRBS were conducted to eliminate inconsistent responders. Moreover, two different behavior surveys were used in the county to gather information about reported sexual activity and contraceptive use. However, the data analyzed in this report were taken from almost identical questions on each survey. And because it was not possible to track individual students who participated in the survey, we do not know the extent to which survey respondents participated in the intervention.

Finally, with a short time period (four years) in which to establish and implement a comprehensive multicomponent school- and community-based effort, any positive change in reported sexual behavior and the estimated pregnancy rate would be encouraging. Large changes in behavior and the estimated pregnancy...
rate would not be anticipated with such a short time period for intervention. However, by the end of the four-year period, the capacity for addressing adolescent health concerns, particularly adolescent pregnancy, was improved. For example, partnerships among important community sectors, such as the local health department and the schools, were nurtured and strengthened. This led to expanded personal and professional commitments to the projects, and to greater attention and commitment to facilitating community and systems changes that could help reduce the risk of adolescent pregnancy.

Despite these limitations, our evaluation of a replication of the school and community model for reducing risk for adolescent pregnancy has a number of positive aspects. First, the comprehensive community evaluation was participatory in nature. The evaluation was designed to track a complex intervention, and the evaluators sought to understand local issues and contexts to best meet the evaluation needs both of the initiative and of key stakeholders.

Second, the evaluation started early in the development of the initiative, to maximize its ability to gather information to enhance understanding and improvement of the initiative. The evaluation was designed around key questions of interest to community members, to initiative leadership and to funders.

Third, the evaluation data were used to help sustain the local initiatives. Specifically, data on the cumulative number of community and systems changes helped communities to garner resources (time and material) to continue the initiatives.

Finally, the evaluation was part of a larger support system that couples technical assistance and evaluation. This support system was designed to help build local capacity for reducing risks for adolescent pregnancy, in part, through enhancing the effectiveness of the initiative.

In summary, this research contributes to an understanding about the impact of multicomponent school- and community-based interventions on adolescent pregnancy rates. The research used a comprehensive evaluation designed to support and assess the process, intermediate outcomes and long-term outcomes of three multicomponent school and community-based projects. The results of this work and additional case studies and analyses will help inform future community initiatives for prevention of adolescent pregnancy. In this particular initiative, the intermediate and more distant outcomes of the project were promising, prompting the Kansas Health Foundation to provide additional funds to continue to explore whether such a multicomponent program model is effective and can be transferred to other areas.

References


17. Ibid.


20. Ibid.


26. Ibid.

27. Ibid.


29. Rawert SB et al., forthcoming, op. cit. (see reference 15).

30. Rawert SB et al., forthcoming, op. cit. (see reference 15).