Adolescent Perceptions of Family Health Behavior: A Tenth Grade Educational Activity To Increase Family Awareness of a Community Cardiovascular Risk Reduction Program

The influence of the family on health and illness behavior has been demonstrated, but few health education programs have made use of the potential force of child-parent interaction to accomplish the program's goals. This paper presents the results of a pilot project designed to investigate the effectiveness of such an approach with adolescents and their families. The high-school-based educational project was performed (1) to facilitate communication between adolescents and their parents in order to increase awareness of a community program to reduce cardiovascular risk; (2) to increase adolescents' judgment of their competence to act as a change agent in relation to family health behavior, and (3) to assess students' perceptions of their roles in family health behaviors.

The study questions were divided into a survey phase and a pilot intervention phase. The survey questions were: What are adolescents' perceptions of their own and their parents' current health practices and needs? What is their level of satisfaction with friends, school and personal health? How confident are high-school students that they could help their parents change or modify health behavior? The pilot intervention study question was: Can a high-school based educational activity increase family viewing of a community-wide health education media event?

SETTING, POPULATION AND MEASURES

Four high schools on the Monterey Peninsula in California (Monterey, North Salinas, Santa Cruz and Pacific Grove) were already involved in various aspects of a smoking cessation and smoking prevention program, conducted as part of the Stanford Five City Project. The program attempts to modify five areas of cardiovascular risk (overweight, smoking, cholesterol intake, lack of exercise and stress) by using the media combined with community organization. The present project was developed as an adjunct to the high school anti-smoking program.

An opportunistic sample was obtained of all 10th grade students in Monterey County currently taking health education or driver education. A precoded, pretested questionnaire was used to collect data on smoking and drug usage, demographic and family health variables and adolescents' perceptions of their own and their families' health behavior, twice during the second school semester in February and May 1981. The students were identified only by a code number constructed by the student from combining their initials and their telephone number. The code number was used to match student's questionnaires from pre- to post-measurement.

To maximize homogeneity of the population studied,
the data reported are based on a selection of 168 Anglo
10th graders who were present in school on the two days
the questionnaires were administered. The students' socio-
economic status ranged from middle to upper-middle class and those studied did not differ from one
school to another in age, proportion of boys and girls,
frequency of those not living with father, frequency of
reported smoking in the previous 24 hours or frequency
of reported alcohol high or marijuana high in the
previous 24 hours.

RESULTS
What Are 10th Graders’ Perceptions of Their Own
and Their Parents’ Health Practices and Needs?
Smoking, alcohol and marijuana use Twenty-one of
168 (12.5%) 10th grade students reported they had
smoked tobacco within 24 hours.* Thirty (17.9%) said
they had been high from alcohol within the previous
week and 14 (8.3%) reported they had been high from
marijuana within the previous week. These figures in-
creased slightly on the second administration of the
questionnaire.
Adolescents’ body weights Body weight reported by
the students were in the ranges consistent with their sex
and age. Forty-seven (28.7%) estimated themselves to
be slightly or very overweight, 28 (17.0%) believed
themselves to be slightly or very underweight and 89
(54.3%) felt their weight was average. Girls were more
likely to rate themselves as overweight and boys were
more likely to rate themselves as underweight.
Parental weight Fathers were perceived more often as
being overweight than were mothers (54% compared to
42.3%).
Adolescents’ assessment of health needs Respondents
were asked to check those of the following health needs
that applied to themselves, to their fathers and to their
mothers: eating a better diet, getting more exercise,
smoking and handling stress better. The rank ordering of
their top choices is shown in Table 1. Differences in
perception of need for themselves vs. their parents are
apparent: diet and exercise are more prominent as self-concerns; stress and smoking are more prominent for fathers; and exercise, stress and smoking
for mothers. The need for improvements in diet, exercise
and stress, however, appears to apply to all family
members, in the opinion of 10th graders.
Adolescents’ perception of stress and how they cope
with it On a 12-point scale from (1) almost never to (12)
almost always, 10th graders felt tense “occasionally”
(means 4.3; mode 5.0) and felt pressed for time “half of
the time to most of the time” (mean 6.8; mode 5.0).
Both boys and girls manage stress by mostly seden-
tary activities, such as watching TV or listening to
music, by being alone or by being with friends (Table 2).
Most types of behavior chosen from the list reflected
common leisure-time activities, rather than behavior
likely to harm their health (getting high, drinking or
chain smoking). Their perceptions of how their parents
deal with stress were not solicited.
Adolescents’ report of own and parents’ exercise and
eating behavior Although 52 (37.6%) indicated that at
least some family members exercised together, a propor-
tion of 10th graders reported no vigorous or moderately
vigorous physical activity in the past three months for
themselves (3.6%), for their fathers (34%) or mothers
(43%). The list of exercise included: jogging or racquet
sports at a level of two hours per week, bicycle riding at
least 25 miles per week, swimming at least one mile per
week, walking at least 3 miles per week or other vigor-
ous physical activity. The most common exercises the
respondents reported were P.E. in school, racquet
sports, bicycling and walking. About 10% of respond-
ents reported that their fathers engaged in regular
jogging or calisthenics and 4% to 6% estimated that
their mothers jogged, played racquet sports or bicycled.
Fifty-three percent indicated that the family ate the
main daily meal together 4-6 times per week and an
additional 22% indicated that the family ate together all
week. About one-third said they almost always helped
to decide what the family would eat and another third
indicated they almost never helped to decide what the
family would eat nor assisted with grocery shopping.
When asked how often (almost never, about half of
the time, almost always) salt was added at the table to
foods before tasting, students believed that they tended
to add salt slightly more often than their parents (almost
always: self-40% father-38%, mother-32%).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Tenth Graders Perceptions of Family Health Needs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Self No. (%)</td>
</tr>
<tr>
<td>Diet</td>
<td>58(22.6)</td>
</tr>
<tr>
<td>Diet &amp;</td>
<td>29(17.3)</td>
</tr>
<tr>
<td>Exercise</td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>26(15.5)</td>
</tr>
<tr>
<td>Stress</td>
<td>17(10.1)</td>
</tr>
<tr>
<td>Diet,</td>
<td>1(0.6)</td>
</tr>
<tr>
<td>Exercise &amp; Stress</td>
<td></td>
</tr>
</tbody>
</table>

*Values are based on a selection of 168 Anglo 10th grade students.
Table 2

Tenth Graders Reported Way of Coping With Nervousness or Tension

<table>
<thead>
<tr>
<th></th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch TV</td>
<td>65</td>
<td>79</td>
</tr>
<tr>
<td>Listen to Music</td>
<td>65</td>
<td>67</td>
</tr>
<tr>
<td>Spend Time with Friends</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>Spend Time Alone</td>
<td>39</td>
<td>46</td>
</tr>
<tr>
<td>Change Surroundings</td>
<td>37</td>
<td>28</td>
</tr>
<tr>
<td>Jog</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>Participate in Organized Athletics</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Work-Out</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Eat Excessively</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>Get High</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Read Nonacademic Materials</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Swim</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Drink Alcohol</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Participate in Organized Religion</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Chain Smoke</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Deep Muscle</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Relaxation</td>
<td>Deep Muscle</td>
<td>Relaxation</td>
</tr>
</tbody>
</table>

Table 3

Tenth Graders Estimation of their Level of Satisfaction with their Family, Friends, School, and Personal Health

<table>
<thead>
<tr>
<th>Level of Satisfaction</th>
<th>Family (%)</th>
<th>Friends (%)</th>
<th>School (%)</th>
<th>Health (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>37.5</td>
<td>34.5</td>
<td>26.2</td>
<td>26.8</td>
</tr>
<tr>
<td>Medium</td>
<td>33.3</td>
<td>23.2</td>
<td>29.8</td>
<td>29.9</td>
</tr>
<tr>
<td>High</td>
<td>28.6</td>
<td>41.7</td>
<td>42.9</td>
<td>32.7</td>
</tr>
</tbody>
</table>

How Confident are 10th Graders that They Could Help Parents Change or Modify Health Behavior?

Several questions asked the 10th graders to rate on a 12-point scale— from 1-very little confidence (not a chance) to 12-a great deal of confidence (definitely)—that they could help a parent make some changes in exercise, smoking or dietary practices. Both boys and girls had less confidence that they could help their fathers make changes than their mothers (Table 4).

Table 4

Tenth Graders Confidence About Their Own Ability to Help a Parent Change Diet or Exercise

<table>
<thead>
<tr>
<th>Tenth Graders Reporting Confidence</th>
<th>Boys (%)</th>
<th>Girls (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to Change Brother</td>
<td>Low</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Mother</td>
<td>Med</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>High</td>
<td>32</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Ability to Change Mother</td>
<td>Low</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>Father</td>
<td>Med</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>High</td>
<td>24</td>
<td>28</td>
<td>26</td>
</tr>
</tbody>
</table>

What is the Level of Satisfaction with their Family Situation?

Adolescents’ assessment of their satisfaction with their family situation is significant for any activity that utilizes communication within the family or diffuses information or awareness of a community-wide health education program. The level of satisfaction reported by 10th graders is listed in Table 3 (three categories based on an estimated one-third distribution for each of low, medium and high levels of satisfaction).

For areas of their health, friends and school, the proportion that reported high levels of satisfaction exceeds the proportion that reported low levels of satisfaction. This was reversed when they considered their family situation, however, with a slightly greater proportion (37.5%) indicating a low level of satisfaction with the family than indicating a high level of satisfaction (28.6%).

Can a High-School Based Educational Activity Result in Increased Family Awareness of a Community-Wide Health Education Program?

An opportunity occurred to test the concept that an educational activity in high school could help increase family awareness of the ongoing community-wide program in cardiovascular risk reduction. Specifically, we wanted the high school students to talk to their parents about heart disease risk factors; to encourage their families to watch a community media event, the county-wide Heart Health Telecast; to rehearse behavior change strategies designed to enable them to facilitate awareness of health behavior; and to report an increased ability to influence family health behavior as a result of the educational activity.
The pilot study was conducted in April 1980, approximately 10 days before the county-wide prime-test television of the Heart Health Test Telecast, in the 10th grade health education classes in Monterey County. A comparison group of 10th grade students was drawn from a nearby town, North Salinas High School. Only two class periods were made available for the educational intervention.

On the first class day, an open discussion was held on what constitutes healthy behavior regarding the heart, along with an explanation of the assessment of their own risk behavior. An edited videotape of the Heart Health Test (HHT), which was to be telecast 10 days later, was previewed by the class. Its format included multiple choice answers to questions concerning heart disease prevention. Finally, a homework assignment was given to assess the risk behavior of parents and siblings through discussion with family members and use of a risk assessment form.

During the second class (two days later), the results of the classroom and homework risk assessments were tallied. The numbers of fathers, mothers, self/sib “at risk” were placed on the blackboard and students discussed the similarities and differences. Finally, student-directed small-group brainstorming and reporting sessions dealt with ways the students could help influence the family to adopt healthier behaviors (such as decreasing salt intake, starting a regular form of exercise or decreasing fats in the diet). The time and date of the upcoming broadcast of the HHT was reinforced and students were encouraged to have their families watch.

Pre- and postprogram evaluation in treatment and comparison groups included student reports of their interaction and communication with their parents, their perception of themselves as change agents for family health behavior and their reports of their own and their parents’ health behavior. Penetration of the Heart Health Telecast, and the attention given to it, was determined by a telephone survey of both the communities and the study populations on the evening of the Heart Health Test Telecast.

The majority of students were interested. Some recounted stories of their own experiences with heart disease and strokes in family members. Contrary to popular opinion, the nutritional aspects of the Heart Health Test seemed to evoke high interest, judging from attention to the TV monitor in class. Many students reported that their parents were interested and that a good family discussion resulted from the telecast. A few students reported resistance, hostility, denial and fear on the part of their parents regarding examining their own health behavior relating to heart disease prevention.

Effect on TV Viewing Of The Heart Health Test A telephone survey was conducted on the evening of the telecast (Friday, April 18 from 8:05 to 9:30 p.m.). The calls were made to numbers voluntarily supplied from four Monterey classes (N = 45 students) who had been given the two special heart health class periods and four North Salinas High School 10th grade Driver Education classes (N = 81 students) who had not. The response rates for giving telephone numbers were 78% and 67%, respectively, for the treatment (Monterey) and comparison school (North Salinas). A random sample of the data on television viewing in the Monterey and Salinas communities was obtained from standardized Nielsen telephone surveys also conducted at the time of the telecast. Table 5 shows that roughly the same proportion of households owning televisions were watching them during the showing of the Heart Health Test in each of the survey samples. The Nielsen rating (the percentage of all TV households watching the Heart Health Test) in Salinas and Monterey, respectively, was 11 and 7 percent. The share (the percentage of all households watching TV who were watching the Heart Health Test) was 20 and 13 percent, respectively. These figures are comparable to the usual share and rating that this particular time period achieves independent of the particular show and therefore indicates that the Heart Health Test was able to attract as large an audience for an educational broadcast as for the average entertainment show.

Chi-square tests of contrasts between treatment and comparison household groups did not reach statistically significant levels. Similarly, testing contrasts between Monterey High School families and Monterey com-

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<table>
<thead>
<tr>
<th>Table 5</th>
<th>Heart Health Test Ratings and Shares for Neilsen Surveys of Two Cities and Telephone Surveys of Two High Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating (%)</td>
</tr>
<tr>
<td>Monterey HS (Intervention)</td>
<td>16</td>
</tr>
<tr>
<td>Salinas HS (Comparison)</td>
<td>8</td>
</tr>
<tr>
<td>Nielsen Survey-Monterey</td>
<td>7</td>
</tr>
<tr>
<td>Nielsen Survey-Salinas</td>
<td>11</td>
</tr>
</tbody>
</table>

RATING: Percentage watching Heart Health Test over number of calls completed (All 'No Answers' were counted as NOT watching TV)

SHARE: Percentage of all watching TV that were watching the Heart Health Test
munity in general did not reach statistical significance. If there were real population differences, they were not discovered in the small samples used. The trend, however, is in the direction of an influence of the project to increase HHT viewing by households whose adolescent members had the in-school program. The number of people per household who were watching the HHT was greater in our intervention population than in the comparison group: Monterey High School, 3.5 people per household watching the Heart Health Test, compared to Salinas High School, 2.1 people per household.

Preintervention and postintervention questionnaires for Monterey High School were compared to those other county high school students who did not have the two special classes. No changes in reported exercise or dietary behavior of the 10th graders or their parents were detected between the Monterey High School and the other high school populations. Also, the 10th graders' perceptions of their ability to help influence their parents' health behavior did not increase as a result of the project.

**DISCUSSION**

It is intriguing to speculate about a treatment effect of the intervention because of the increased number of households who watched the Heart Health Test on television. Yet, it is unrealistic to expect family health behavior or attitudes to change as a result of such a brief classroom activity. The data derived from a pilot experience is most useful when applied to the original rationale for undertaking it. The lessons that were learned need to be clarified and the overall merit of the approach needs to be evaluated. The discussion to follow will consider each of these issues in turn: Why focus on the family as a target for health educational programs that hope to alter health behavior? Why consider the school to link community programs aimed at health behavior apart from the family? What lessons were learned from the experience? And what judgment can be made about the value of this approach?

**Family** The family is the major influence in establishing children's health behaviors, especially in the early stages of development. This has been documented best for dietary preferences and exercise habits. In older children and young adolescents, the influence of peers may reinforce or modify the influence of the parental health habits that the young child had observed. The best example of this is smoking. The family not only initiates health behaviors, it may maintain them.

The family system provides communication and support networks for its members. These could be utilized to promote or maintain healthful behavior. Pratt has described an open and flexible style of family communication and mode of child rearing that is associated with beneficial health habits for adults and children. Several recent programs for obesity now suggest that weight loss effects are maintained longer if family support is structured into the treatment program.

In considering the adolescent as a family change agent or gatekeeper for health information, the reciprocal influence of the child on parents' behavior and attitudes is crucial. This influence has been demonstrated throughout the life cycle. One study examined the role of adolescents in adult decision making. Adolescents were found to have a measurable influence on parents' routine daily activities, use of leisure time, choice of television shows and meal planning. Such decisions are exactly those involved in health and lifestyle improvement campaigns. This suggests that, with skill training, adolescents might, be helpful to families who were interested in engaging in health promotion programs.

**School** As is the case for families, schools operate as systems, and have been shown to influence student behavior apart from the family. Mechanisms already exist in schools that are useful in influencing behavior change: resources and incentives among peer groups and systems for feedback and potential reward. The school offers unique advantages to a community health education program, because it cuts across all segments of the community and links many families in the community.

**Lessons** From this experience, we learned that adolescents are interested in health behavior and in the relationships that they detect within their families. The data suggest that adolescents have ideas already formed about family health behavior and needs. The data also suggest that many adolescents do not see themselves in the role of health advocate for other family members, and that the family may be one of the least satisfying parts of their life. Therefore, if family approaches are to be employed, then educational activities must be of longer duration, must be designed to increase the adolescents' skills and must involve parents directly. It may be better to initiate school-based family approaches at an earlier grade level, such as late elementary school, when family ties are not being strained by the tasks that are appropriate in adolescent development as they establish independence from the family unit.

Potential negative effects of health education programs need to be predicted and obviated. Approaches of the type piloted here have the potential danger of increasing resistance to a health message. This could occur if the offspring's challenge of long-held health habits or beliefs are perceived by the parent as an excessive threat.
This could be overcome by ensuring the teaching of good communication skills to the adolescents, by focusing on the family as a unit, and by actively involving parents early in the educational activities.

Value One purpose of a report of a pilot experience is to encourage others to report their experiences with similar projects. Much of what is learned from such early experiences can be useful in developing future techniques. The literature, although not complete, suggests that an approach directed to the family holds promise. We believe our experience supports the idea that school-based activities have the potential, at several levels, of enhancing family health: (1) the level of community program awareness; (2) the level of recruitment of families, teachers, and students to participate in various aspects of the community programs; and, with more resources than were utilized in this pilot project, (3) the level of direct involvement of families in health behavior change programs.

References

*These self-reports were validated by carbon monoxide samples from each student.

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2. Currently at the Laboratory of Physiological Hygiene, University of Minnesota.
3. Deceased.