Changing Adolescent Health Behaviors
The Healthy Teens Counseling Approach

Ardis L. Olson, MD, Cecelia A. Gaffney, MEd, Pamela W. Lee, PhD, Pamela Starr, MS

Background: Brief motivational interventions that have been provided in addition to routine primary care have changed adolescent health behaviors. Whether health screening and motivational-interviewing–based counseling provided by clinicians during routine care can change behaviors is unknown.

Methods: Healthy Teens was a primary care, office-system intervention to support efficient, patient-centered counseling at well visits. Healthy Teens utilized a personal digital assistant (PDA)–based screener that provided the clinician with information about a teen's health risks and motivation to change. Changes in adolescent self-report of diet and activity health behaviors 6 months later were assessed in two cross-sectional samples of teens from five rural practices in 2005 and 2006. Usual-care subjects (N=148) were recruited at well visits prior to the intervention, and the Healthy Teens subjects (N=136) were recruited at well visits after the Healthy Teens system was well established.

Results: At 6-month follow-up, the Healthy Teens group had significantly increased self-reported exercise levels and milk-product intake. In the models exploring covariates, the only significant predictors for improvement in exercise levels were intervention-group status (p=0.009) and post-visit interest in making a change (p=0.015). Interest in changing predicted increased milk intake (p=0.028) in both groups. When teens planned an action related to nutrition, physical activity, or both after a well visit, Healthy Teens participants were more likely to report multiple planned actions (68% Healthy Teens vs 32% usual care, $p<0.05$).

Conclusions: Changes in office systems using low-cost technology to screen adolescents and promote patient-centered counseling appear to influence teens to increase exercise and milk intake.
(Am J Prev Med 2008;35(5S):S359–S364)

Introduction

Adolescent health–compromising behaviors can persist into adulthood and contribute to chronic disease and mortality. National surveys reveal that 70% of adolescents report one or more of eight health-risk behaviors.[1] To address these challenges, national guidelines recommend screening and preventive services for adolescents.[2,3] Adolescents consider healthcare providers a credible source of information, and most want to discuss health risks with their clinician.[4] While most adolescents apparently want to discuss risk behaviors, clinician inquiry and discussion, however, are infrequent.[5,6] When adolescents respond to computer or paper screening, they are more likely to be honest about sensitive issues like substance use.[7] But screening-questionnaire use has not been widely embraced by clinicians, and oral questioning has been inconsistent. For example, only 5% of pediatricians reported routinely using screening questionnaires that assessed substance use.[8]

The Healthy Teens intervention, designed to enhance the adolescent well visit, included (1) a comprehensive health- and behavior-risk screener via a low-cost personal digital assistant (PDA (e.g., Palm®); (2) clinician training in brief motivational-interviewing techniques, complemented by information from the PDA screening that prompted clinicians to use a motivational-interviewing approach; and (3) information about outside resources for practices and adolescents. The hypothesis was that adolescents who received well visits enhanced by the Healthy Teens intervention would later report improved health behaviors compared to adolescents seen in these practices prior to the Healthy Teens implementation. The Healthy Teens project was supported by the second round of the Robert Wood Johnson Foundation Prescription for Health program.

From the Department of Pediatrics (Olson) and the Department of Community and Family Medicine (Olson, Gaffney, Lee, Starr), Dartmouth Medical School, Lebanon, New Hampshire

Address correspondence and reprint requests to: Ardis L. Olson, MD, Professor of Pediatrics and Community and Family Medicine, Clinicians Enhancing Child Health Network, Dartmouth Hitchcock Medical Center, Department of Pediatrics HB 7450, Lebanon NH 03756-001. E-mail: Ardis.Olson@Dartmouth.edu.

 doi:10.1016/j.amepre.2008.08.014

Methods

Study Design, Context, and Subjects

The Healthy Teens project was conducted in five rural primary care practices using a pre–post evaluation study design from 2005 to 2006. Prior to the Healthy Teens implementation, a control group of adolescents with usual care was enrolled after well visits. Clinicians and practices were then trained to implement the Healthy Teens intervention. After Healthy Teens components had been in regular use for at least 6 months, a second evaluation group of adolescents who received the Healthy Teens intervention was enrolled after well visits.

Practices in New Hampshire and Vermont from the practice-based research network Clinicians Enhancing Child Health were selected to include a range of practice size (1–9 full-time equivalents) and specialty mix (family medicine [1]; pediatric [3]; and mixed family medicine/pediatric [1]). In these practices, patients were 95% Caucasian, and had Medicaid insurance rates varying from 10% to 40%.

The evaluation groups were recruited consecutively at teen health visits over two 3-week periods in July–August 2005 and July–August 2006. First, teens completed in the office an anonymous exit survey at baseline. Those who consented to enrollment were mailed a follow-up survey 6 months later. The intervention sample was recruited 1 year later to have similar seasonal variations in both samples. Of adolescents in the usual-care group who completed the baseline survey, 76% enrolled in the study. Of the potential intervention group, 87% enrolled. Small financial incentives were given for the initial ($3) and follow-up survey ($10). Adolescents aged ≥18 years signed informed consent at enrollment, and those aged <18 years provided assent along with parental consent. The Dartmouth Medical School IRB approved the study protocol.

Clinicians were surveyed both prior to training and 18 months later to assess changes in their attitudes and perceived counseling skills as well as in their views about PDA use. The post-survey was taken during the maintenance period when all practices had used the Healthy Teens system for at least 12 months.

The Healthy Teens evaluation was guided by the Reach, Efficacy/Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework.[9,10] The adolescent-outcome measures addressed the efficacy of the intervention. Reach was measured by the percentage of teens that completed PDA screeners during health visits at 18 months. The uptake of the program by practices was a measure of adoption, and maintenance was based on the number of clinicians who used PDAs during the project and then reported the intention to continue PDA use at 18 months.

Intervention

The intervention provided clinicians with tools and strategies to incorporate into the well visit. Teens completed a screener via PDA in the office prior to clinician contact. Screener questions were derived from existing adolescent health behavior screening questionnaires as well as from the suggestions of a panel of practicing pediatricians and family physicians.[11] For the health behaviors targeted by the Prescription for Health program (tobacco use, unhealthy diet, physical inactivity, and risky alcohol use), the screener assessed the teen's interest in making a change and perceived importance and confidence that the teen could change each specific behavior. Prior to the visit, the clinician reviewed a PDA summary of the patient's health concerns, risky and healthy behaviors, and interest in change. All clinical staff and clinicians received the same training in using the PDA, and received assistance in incorporating this technology into existing office operations.

Clinician training in brief motivational-interviewing counseling skills was provided to support patient-centered counseling because of its potential to improve health behaviors.[12–14] All clinicians received 3 hours of interactive training that included reflective listening, methods of addressing ambivalence, and goal setting. Training was provided at all sites by a clinician and health psychologist.

Each site had three lunchtime presentations by community services to enhance links to local resources. Practices chose presentations from available programs based on interest, so topics and content varied across sites. Presenters ranged from police departments to mental health services to teen activity programs. Because of limited local resources for supporting behavior change, a pocket card of regional and national web-based resources and toll-free numbers was developed.

Measures

The evaluation questions were selected by the Prescription for Health program office[10]; they measured current adolescent health behaviors regarding eating patterns (consumption of fruits and vegetables, milk, and sweetened beverages); physical activity excluding physical education (days/week when moderately active for 30 minutes or more, hours of weekday television and non-academic computer use); cigarette smoking; and alcohol consumption.

In the initial survey, for each of the above-mentioned behaviors, subjects were asked if the topic had been discussed in the visit. If the topic had been discussed, the subject's interest in making a change was determined. Response options were a simplification of the stages-of-change model[15] and included *doing well no need, not interested, thinking about changing, willing to try to change,* and *already trying to change.* Subjects with any active interest (*thinking . . .*, *willing to try . . .*, or *already trying to change*) were considered to be interested in change after clinician interaction. Those who responded *no need* or *not interested*, or who never discussed the topic, were classified as not interested in change.

Subjects in the initial survey were also asked to list any change they planned to make following this visit with their clinician. Responses were coded as a planned nutrition change, a planned physical activity/sedentary behavior change, or some other planned health behavior change (e.g., alcohol/drugs, sexual health, mental health). Subjects with any response were classified as having made an action plan for that item. The total number of planned actions was calculated for each subject.

A clinician survey assessed perceived counseling skills and roles prior to and 18 months after the Healthy Teens implementation. Clinicians were asked their level of agreement with statements using a 5-point scale (1=*strongly agree* to 5=*strongly disagree*). Post-surveys included additional items pertaining to motivational-interviewing skills and PDA implementation. Perceived confidence in these skills and the use of a PDA were assessed post-intervention only.