Behavioral Change in Preventive Medicine

An Efficacy Assessment of a Physician Education Module

Linda H. Pololi, MB, MRCP, Susan Potter, BS, RN

We designed and evaluated a program to teach internal medicine residents behavioral counseling skills for multiple risk factor modification. Integrating physician-patient communication, negotiation skills, and the transtheoretical model of behavior change, we used small group discussion and standardized patients. The 18 participating residents increased their ability to modify patient behavior during videotaped interviews, mean pretest/posttest score: 33.1/40.1 (Student's paired *t* test, $p < .0001$). Physician self-efficacy in screening for risk factors and effecting behavioral change in patients was increased ($p < .0001$), as were positive attitudes toward psychosocial factors ($p < .003$). Our teaching effectively increased the residents' self-efficacy and performance of behavioral counseling.

KEY WORDS: **medical education; risk factor modification; behavioral counseling; transtheoretical model; competency-based teaching.**

J GEN INTERN MED 1996;11:545–547.

The habits of smoking, physical inactivity, and a diet high in saturated fat contribute significantly to the incidence of coronary heart disease, the most common cause of death in adult Americans. The U.S. Preventive Task Force, Healthy People 2000, and others recommend that physicians screen and counsel all patients for these risk factors.[1–3] Nonetheless, the frequency and effectiveness of patient counseling by physicians for risk factor modification remain disappointing. Several contributing themes noted in the literature are pessimism regarding the ability to effect behavioral change, lack of confidence on the part of physicians in their own ability to carry out this task (self-efficacy),[4,5] and very low performance rates.[6,7] Studies of this seemingly difficult task have recommended that the skills required for promoting behavioral change need to be learned during medical education.[8,9] Some curricular and educational interventions have addressed this need.[10–12] Our educational intervention addresses physician self-efficacy and ability to perform effective counseling for promoting behavioral change.

Received from East Carolina University School of Medicine and Memorial Hospital of Rhode Island and Division of General Internal Medicine (LHP) and Division of Cardiology (SP), Brown University School of Medicine, Pawtucket, RI.

Presented at Prevention 94, Atlanta, Ga., March 1994.

Supported in part by a grant from The Rhode Island Foundation.

Address correspondence and reprint requests to Dr. Pololi: Department of Medicine, East Carolina University School of Medicine, Brody Medical Sciences Building 2N-46, Greenville, NC 27858.

METHODS

We developed and pilot-tested a teaching module addressing the need for primary care physicians to become competent in counseling for lifestyle modification. The educational goals of the training were to increase: knowledge about three major cardiac risk factors; knowledge of techniques for building rapport between physician and patient, and promoting behavioral change; skill in counseling techniques; and self-efficacy regarding promoting behavioral change.

Studies indicate that people pass through a series of cognitive stages as they change behavior.[13] These stages of readiness to change—precontemplation, contemplation, preparation for action, action, maintenance, and relapse—reflect the intent to consider or attempt behavioral change, and a stage-matched approach to intervention has been shown to increase the likelihood of eventual success. The important principles of decisional balance[14] and self-efficacy[15] have been incorporated into our counseling model. Our study was carried out with 18 internal medicine residents of all three years of training at Memorial Hospital of Rhode Island, a Brown University postgraduate training program. To teach behavioral counseling skills and to evaluate competence in this area, we developed a training program for patient-instructors (PIs) based on Stillman's approach.[16] We recruited and trained eight persons who acted as standardized patients and who were also trained to provide feedback to physicians concerning use of targeted skills. The PIs were trained to portray patients requiring modification of at least one of the following risk factors: smoking, physical inactivity, and hypercholesterolemia.

Core knowledge of cardiovascular risk factors and the principles of modifying behavior in patients were taught to residents in four 45-minute interactive small group seminars in the context of ambulatory continuity clinic conferences. We enhanced acquisition of counseling skills in residents by use of PIs. Each resident spent three 45-minute sessions with PIs, counseling them for smoking cessation or reduction of dietary fat. These sessions were incorporated as clinic visits into each physician's schedule in the clinic. During these teaching sessions, groups of two or three residents received constructive feedback on their counseling skills from the PI, facilitated by a faculty member.

Residents were trained to provide brief counseling with a patient-centered approach. The model addressed the need to develop skills for building a good physician-patient relationship,[17] employ negotiation with patients while addressing their needs,[18] educate the patient regarding the benefits of change and the risks of not chang-

ing,[14] increase patient self-efficacy,[15] and tailor the intervention to the patient's readiness for adopting the behavioral change.[13] We taught residents 12 skills that encompassed the concepts of our counseling model within a stage-matched approach (Table 1). The task of the resident was to help advance the patient to the next stage of change. The 12 skills are equally applicable to a diverse range of risk factors and incorporate strategies found to be effective in promoting behavioral change. A validated rating scale evaluates use of each of the skills.[11] The scale has a 5-point Likert format, in which 5 denotes explicit and regular use of the strategy and 1 denotes that the interviewer failed to demonstrate use of the strategy. An interviewer demonstrating use of all 12 strategies optimally could thus score a total of 60 points. We assessed pretraining/posttraining counseling competence by videotaping the residents interviewing a PI with the risk factor of physical inactivity. The same two faculty members and two PIs each independently reviewed and rated both the pretraining and posttraining videotaped interviews. Before the study, all raters were extensively trained to ensure rating uniformity. No data were excluded because of lack of uniformity. Weighted kappa (κ) and percent agreement were calculated for five subjects for each of the two pairs of raters: For pair one, $\kappa = 0.6$, agreement 90%; for pair two, $\kappa = 0.7$, agreement 93%. The mean scores for each of the 12 skill items and the changes between pretraining and posttraining subscale scores were determined.

RESULTS

Physician self-confidence in ability to screen for risk factors and to effect behavioral change in patients was significantly increased. Using a 5-point Likert scale, where 1 indicated not confident and 5 indicated very confident, the mean difference between pretraining and posttraining self-efficacy scores was 0.45 for screening and 0.40 for effecting change (Student's paired t test, $p < .0001$). On a validated instrument that measures attitudes toward psychosocial factors,[19] increased recognition of the importance of emotional factors and interpersonal relations between health professionals and patients was found. Using a 5-point Likert scale, where 1 indicated strong agreement and 5 indicated strong disagreement, the mean difference between pretraining and posttraining scores was 0.2 (Student's paired t test, $p < .003$). During videotaped PI interviews, residents demonstrated significantly increased ability to modify patient behavior. Posttraining total scores were significantly increased, as were all of the subscales (Table 2).

Table 1. The Process of Interviewing for Risk Factor Modification

General interviewing techniques
Organizing the interview
Developing rapport with the patient
Closure and follow-up
Creating a positive focus
Reinforcing effort to change
Highlighting positive consequences
Reframing past failure
Relationship-forming skills
Demonstrating support and partnership
Showing empathy for the difficulty of the task
Confidence in necessity of change and in ability of the patient to change
Instigation of behavioral change
Identifying a primary target with the patient
Negotiating the first step of change
Using a specific behavior change technique

DISCUSSION

Most smokers, sedentary people, and those accustomed to a high-fat diet are not ready to actively change their behavior. Despite this fact, most community prevention programs are designed for people who are in the preparation stage of change. Prochaska and Goldstein estimated that 60% of smokers are precontemplators and only 10% are preparing to stop smoking.[20] Hence, most smokers will neither attend nor be able to benefit from intervention programs. The unreadiness of patients to change risky behaviors underlies the need for competent counseling by physicians when patients visit for any reason. Knowledge of the transtheoretical model[13] allows physicians to lower their expectations appropriately in terms of immediate change in patient habits and to recognize progression along a continuum of change as a successful short-term outcome.

Our educational intervention incorporates principles of adult learning theory and teaching in small groups with patient-instructors and videotaping, which enhance learning and increase enjoyment in learning. Learning was carried out in the context in which it would be applied (the clinic). Interacting with PIs, the residents practiced newly learned skills, such as creating a positive focus, and appreciatively received immediate feedback. We did not measure long-term effects of our intervention. A strength of our module is its applicability to brief encounters with

Table 2. Measurement of Ability to Modify Patient Behavior

Measure	Mean Difference (Posttest Minus Pretest)	p Value
Total subscale score	7.044	<.0001
General interviewing techniques	1.603	<.0001
Relationship-forming skills	6.25	<.02
Creating positive focus	1.853	<.0001
Instigation of behavioral change	1.824	<.0001

patients. Even more promising is the possibility that the module teaches a set of generic counseling skills for behavioral change that will be effective at changing a variety of behaviors.

We would like to thank Dr. Carol Garber for help with data analysis and Ms. Sandra Coppolino and Ms. Barbara Little for administrative assistance.

REFERENCES

1. US Preventive Services Task Force. Guide to Clinical Preventive Services. Baltimore, Md: Williams and Wilkins; 1996.
2. Healthy People 2000: National Health Promotion and Disease Prevention Objectives. US Public Health Service, Department of Health and Human Services. Washington, DC: US Government Printing Office; 1991.
3. Southard DR, Winett RA, Walberg-Rankin JL, et al. Increasing the effectiveness of the National Cholesterol Education Program: dietary and behavioral interventions for clinical settings. Ann Behav Med. 1992;14:21–30.
4. Valente CM, Sobal J, Murcie HL, Levine DM, Antlitz AM. Health promotion: physician beliefs, attitudes and practices. Am J Prev Med. 1986;2:82–8.
5. Wells KB, Lewis CE, Leake B, Ware J. Do physicians preach what they practice? JAMA. 1984;252:2846–8.
6. Lewis CE, Clancy C, Leake B, Schwartz JS. The counseling practices of internists. Ann Intern Med. 1991;144:54–8.
7. Moser R, McCance KL, Smith KR. Results of a national survey of physicians' knowledge and application of preventive capabilities. Am J Prev Med. 1991;7:384–90.
8. Borhani NO, Beran RL, Blackburn HW, et al. Task Force 5: the preparation of future medical practitioners (medical education at the under-graduate, graduate and post-graduate level). Am J Cardiol. 1981;47:769–76.
9. Muller S. Physicians for the twenty-first century: report of the project panel on the general professional education of the physician and college preparation for medicine (pt 2). J Med Educ. 1984;59:1–55.
10. Ockene JK, Quirk ME, Goldberg RJ, et al. A residents' training program for the development of smoking intervention skills. Arch Intern Med. 1988;148:1039–45.
11. Levenkron JC, Greenland P. Validation of the University of Rochester risk factor interview scale. Am J Prev Med. 1987;3(3):152–6.
12. Pololi LH, Coletta EM, Kern DG, et al. Developing a competency-based curriculum for medical schools. Am J Prev Med. 1994;10:240–4.
13. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. J Consult Clin Psychol. 1983;51:390–5.
14. Janis IL, Mann L. Decision making; a psychological evaluation of conflict, choice and commitment. New York, NY: Free Press; 1977.
15. Bandura A. Self efficacy: toward a unifying theory of behavioral change. Psychol Rev. 1977;84:191–215.
16. Stillman PL, Burpeau-DiGregoriao MY, Nicholson GI, et al. Six years' experience using patient-instructors to teach interviewing skills. J Med Educ. 1983;58:941–6.
17. Lazare A, Putnam SM, Lipkin M. Three functions of the medical interview. In: Lipkin M, Putnam SM, Lazare A, eds. The Medical Interview. New York, NY: Springer-Verlag; 1995;11–4.
18. Quill TE. Partnerships in patient care: a contractual approach. Ann Intern Med. 1983;98:228–34.
19. Parlow J, Rothman AI. ATSIM: a scale to measure attitudes toward psychosocial factors in health care. J Med Educ. 1974;49:385–7.
20. Prochaska JO, Goldstein MG. Process of smoking cessation: implications for clinicians. Clin Chest Med. 1991;12:727–35.