Effect of a Brief Physician Intervention on Seat Belt Use

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It has been suggested that the next major advances in health will be made only by using an approach that emphasizes health promotion and primary prevention.[1] While such an approach has theoretical potential, there are important obstacles involved in its implementation,[2] among which are the difficult challenge of changing lifestyle behaviors in the general population[3] and the current lack of adequate incentives for health care providers to carry out primary prevention in the area of lifestyle behaviors. Further difficulties arise in trying to fit health promotion efforts into routine office care.

This article presents the results of a simple, brief intervention technique, as implemented in one family practice office. Seat belt use was chosen as the target behavior for the intervention because of its simplicity and the failure of repeated national and local public education campaigns to increase the use of seat belts. In contrast, legislation to mandate seat belt use has been an effective measure in other countries. Some US states[4] have now enacted such legislation; more are likely to follow. This project was conceived as a pilot effort. If successful, a similar brief intervention technique could be used and tested for a larger number of lifestyle behaviors.

METHODS

Beginning early in 1985, a convenience sample of 77 established patients over the age of 15 years from the author's private practice were given a brief questionnaire* to complete while waiting for the physician. At the end of each office visit, the questionnaire was reviewed and the importance of seat belt use emphasized in a brief statement by the physician. Patients who reported that they did not always use seat belts were then given a one-page sheet of "seat belt facts."* The time needed for this intervention was approximately 30 seconds. Follow-up data were collected at the patient's next visit to the office. This format for data collection and intervention was chosen so as to interfere as little as possible with office routine and ongoing patient care.

The questionnaire measured self-reported frequency of seat belt use, reasons for not using seat belts, demographic variables, accident history, and a rough estimate of motivation for change ("Are you interested in learning more about the pros and cons of wearing seat belts?"). The patients were asked at follow-up whether they had made a change in their seat belt use. If they had, they were asked to record the change. The initial and postintervention responses were converted by ruler measurement to a numerical seat belt use score (0 = never, 100 = always) for data analysis.

In late 1985 follow-up data collection was stopped when the state legislature began to discuss seat belt legislation; a bill was signed into law four months after data collection ended. Since data collection was stopped promptly when news about the impending legislation reached the public, bias of results from this source is unlikely.

RESULTS

The characteristics of the sample and the effects of the intervention are shown in Table 1. Sixty-five patients returned to the office before data collection was stopped, giving a response rate of 84 percent. Race and education were not specifically recorded, but based on practice demographics, most patients were white and had the equivalent of a high school education or higher. Time to follow-up was as long as ten months because of the unpredictability of patients' visits to the office. However, one half of the patients were seen for follow-up within five weeks. Of the 65 patients from whom follow-up data were obtained, 21 "always" used seat belts (initial seat belt use

* *Available on request from the author.*

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TABLE 1. SAMPLE DESCRIPTION AND EFFECTS OF INTERVENTION

Follow-up data obtained	65 (84% response)
Male	19
Female	46
Age (mean years [SD])	38 (±16)
Days to follow-up (mean [SD])	79 (±91), median 35
	No. (%)
Patients sampled who "always" use seat belts	21 (32)
Target group for intervention	44 (68)
Reasons for not wearing seat belts	
Forget to use	27 (61)
Not comfortable	16 (36)
Short trip, not necessary	15 (34)
Motivated "to learn more" about seat belts	24 (55)
Target group patients that did not change	23 (52)
Target group patients that changed	21 (48)
Changed to "always" use	7 (16)
Target group initial use score (mean [SD])	26 (±24)*
Target group follow-up use score (mean [SD])	47 (±35)*
Score increase for target group (mean [SD])	21 (±30)
Score increase for those who changed (mean [SD])	44 (±28)

** P = .000 by paired t test*

TABLE 2. CHANGE IN SEAT BELT USE BY MOTIVATION

	Initial Use Score**	Follow-Up Use Score	Score Change***
Motivated*	29.5 (±24)	61.0 (±36)	31.5
Not motivated*	21.8 (±24)	30.2 (±27)	8.4

** Target group patients only (n = 44)*
*** Difference in initial use by motivation not significant (P = .3 by t test)*
**** Difference in score change by motivation significant (P = .008 by t test)*

score of 100), leaving a target group of 44 for the intervention. The reasons these patients gave for not wearing seat belts were similar to those listed in other surveys, the one most commonly chosen being, "I forget or I don't think of it." Fifty-five percent of patients were motivated to "learn more." In the target group, 48 percent reported a change in behavior; of these one third changed to "always" users. The mean seat belt use score increase was 21 for the target group as a whole. This increase in reported use was statistically significant (P = .000 by Student's *t* test).

Several potential predictors of seat belt use as well as factors that might influence the degree of change in use following the intervention were examined. Tested factors included patient sex, age, personal history of "a serious automobile accident," "someone close to you" in a "serious accident," and motivation. No factor was significantly associated with initial seat belt use in this sample; only motivation was found to be a predictor of change in seat belt use. The mean change in seat belt use score for motivated patients was 31.5 compared with 8.4 for those not motivated (Table 2). This difference was statistically significant (P = .008 by *t* test). By regression analysis, this effect accounted for 16 percent of the variance in seat belt use score change.

DISCUSSION

In this study 32 percent of patients reported that they "always" used seat belts. This figure is higher than reports of 10 to 25 percent found in most larger surveys.[5,6] The findings in this study could be related to small sample size, sampling bias (only patients coming to a family physician's office were sampled), or self-report bias.

The results demonstrate that even a brief physician-patient interaction may have significant effects on seat belt use, presuming the patients' self-reports to be accurate. Almost one half of the target group who did not always use seat belts on initial screening changed their reported use. The effects of the intervention technique were gratifying, particularly in light of the limited physician and office staff resources required. Interestingly, a single question identifying a motivational factor was significantly predictive of the degree of reported change. This finding suggests that simple screening questions might allow a physician to pick out those patients most likely to change behavior. It remains to be seen how effective this technique would be with other lifestyle behaviors, but the results can provide encouragement to primary care physicians who would like to try similar methods in their offices.

Limitations of this pilot study were predominately the absence of a control group and possible self-report bias. The lack of a control group raises the possibility that influences other than the intervention affected seat belt use. It will be important to replicate these results in a more carefully controlled design. In an effort to reduce self-report bias, patients were asked to be "brutally honest" at the time of follow-up. Nevertheless, it would have been more valid to confirm the reports in some fashion, such as making clandestine observations of patients' seat belt use after leaving the office. A possible maturational effect bias was reduced by ending the data collection when rumors of coming changes in seat belt laws reached the public. A further limitation is the lack of long-term follow-up

to check on the permanence of patients' reported changes. In a typical clinical setting, however, behavior changes could probably be maintained by regular physician reinforcement at the time of routine office visits.

References

1. Healthy people: The Surgeon General's report on health promotion and disease prevention. DHEW publication No. (PHS) 79-55071. Government Printing Office, 1979
2. Taylor RB: Health promotion: Can it succeed in the office? Prev Med 1981; 10:258–262
3. Wechsler H, Levine S, Idelson RK, et al: The physician's role in health promotion: A survey of primary-care practitioners. N Engl J Med 1983; 308:97–100
4. Morelock S, Hingson RW, Smith RA, Lederman RI: Mandatory seat belt law support and opposition in New England: A survey. Public Health Rep 1985; 100:359–363
5. Goldbaum GM, Remington PL, Powell KE, et al: Failure to use seat belts in the United States: The 1981–1983 behavioral risk factor surveys. JAMA 1986; 255:2459–2462
6. Perkins DD, Cynecki MJ, Goryl ME: Restraint system usage in the traffic population. National Highway Traffic Safety Administration. Department of Transportation publication No. (HS)806-582. Government Printing Office, 1983