
Patient Education: Comparative Effectiveness by Means of Presentation

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The literature is replete with examples of patient education experience in university clinic and multispecialty group clinic settings.¹⁻⁸ Objective research in this field from the perspective of the office-based family physician is, however, still in its infancy. Geyman⁹ has remarked on the lack of studies addressing patient education in the American family practice literature. Rodnick and Bubb¹⁰ reported the beneficial effects of patient education combined with health hazard appraisal and laboratory screening in well-motivated adults, whereas Webb¹¹ found no benefit for patient education in improving care of hypertensive patients. Roberts et al¹² reduced the rate of unnecessary visits for colds by 44 percent when health educators presented information and self-care instruction to patients in a family practice residency practice. Reed et al¹³ found that type of family practice setting and familiarity with the prescribing physician influenced compliance with treatment for acute otitis media. However, none of these studies has selectively compared different styles of patient education from the perspective of the office-based family physician.

The purpose of the present study was to compare the effectiveness of three different methods of presenting the same patient education information in a family practice office. The three methods

include (1) a physician presenting the information with a take-home educational handout, (2) a nurse presenting the information with the same educational handout, and (3) the educational handout without embellishment by physician or nurse. The hypotheses were: (1) the office nurse can do patient education as well or better than a physician, and (2) a consistently used unembellished information handout will result in better knowledge gain and compliance than when no handout is used.

METHODS

The study was based in the model office for the Cedar Rapids Medical Education Program. The common problem of otitis media was chosen as the test condition. Patients or the parents of patients with otitis media were assigned to three study groups in rotating sequence. The first, a physician-educated group, consisted of 42 patients. After the diagnosis of otitis media was made, the physician excused himself or herself from the room. He returned to the room with a one-page educational handout that was read and reviewed with the patient or patient's parent. The physician educators consisted of 26 family practice residents and four family practice faculty members. The second group, a nurse-educated group, consisted of 44 patients. In this group after the physician left the room, a nurse would return to the room and read and review the handout with the patient. The nurse educators consisted of one registered nurse, three medical assistants, and two licensed practical nurses. The third group, a

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handout-only group, consisted of 43 patients. In this group the physician gave the patients the handout and encouraged them to read it, but made no effort to explain it. In all cases the patients left the office with the handout.

These educational groups were studied in two ways. First, five to seven days after the intervention, a ten-question telephone true-false questionnaire was administered. In addition, charts were reviewed to determine compliance with a scheduled two-week follow-up appointment.

Two control groups were established. First, 37 patients or parents of patients with pharyngitis, but not otitis media, were given the telephone questionnaire five to seven days after their office visit. This group had received no patient education regarding otitis media. Second, the charts of a prestudy comparison group of 40 sequential patients with otitis media seen during a 2.5-month period one year prior to the study period were reviewed for compliance with a scheduled two-week follow-up appointment. There were no statistically significant differences among the study groups and control groups when compared for age, sex, education, income level, and medical pay type by chi-square analysis.

Sixty-nine percent of all study patients were contacted by telephone. The specific contact rates were 30 of 42 (71 percent) in the physician group, 31 of 44 (70 percent) in the nurse group, and 28 of 43 (65 percent) in the handout-only group. Three methods of statistical analysis were applied to the data collected. The overall questionnaire results were evaluated by one-way analysis of variance. The specific group mean scores were compared by Student's *t* test. The compliance of the different groups with return visits was compared by chi-square analysis. A confidence level of $P < 0.05$ was used for all methods of statistical analysis.

RESULTS

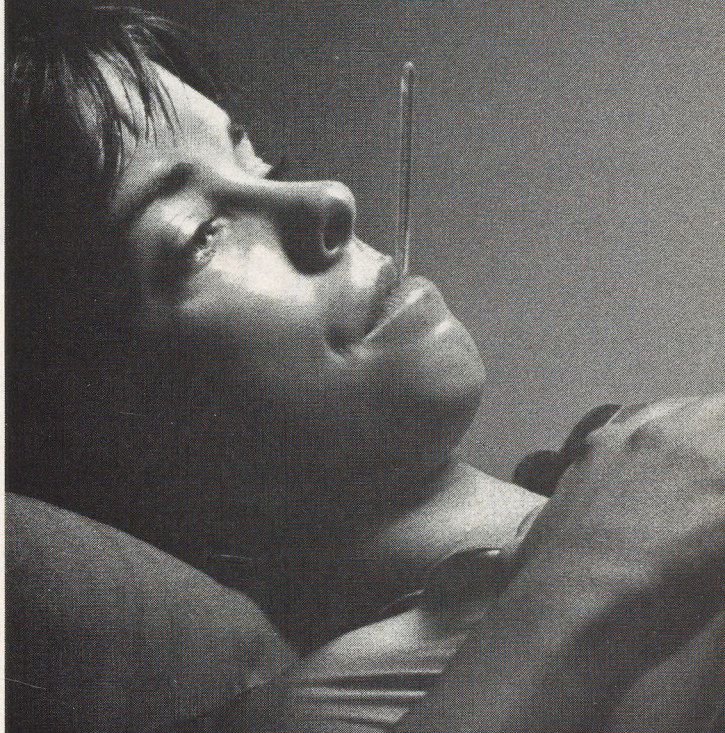
The results on the postintervention telephone questionnaire are shown in Table 1. The nurse-educated group scored significantly higher than both control group and handout-only group.

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TABLE 1. SCORES ON POSTINTERVENTION QUESTIONNAIRE

Study Group	Number	Mean Score	Standard Deviation
Physician	30	8.13	1.53
Nurse	31	8.45	0.68
Handout-only	28	7.71	1.05
Control	32	7.54	1.22

Analysis of variance F = 2.68, ANOVA SS 3.73, df = 3,122, P < .05
Physician vs control t = 1.93, P < .05
Nurse vs control t = 3.04, P < .05
Nurse vs hand-out only t = 2.44, P < .05

TABLE 2. COMPLIANCE WITH RETURN APPOINTMENT

Study Group	Number	Met Appointment	Percentage of Met Appointments
Physician	42	30	73.8
Nurse	44	39	88.6
Handout-only	43	37	86.0
Prestudy comparison	40	16	40.0

Overall $\chi^2 = 30.70$, df = 3, P < .001
Physician vs prestudy comparison $\chi^2 = 8.21$, df = 1, P < .005
Nurse vs prestudy comparison $\chi^2 = 21.92$, df = 1, P < .001
Handout vs prestudy comparison $\chi^2 = 19.04$, df = 1, P < .001
Physician vs nurse $\chi^2 = 4.02$, df = 1, P < .05

The physician-educated group scored significantly higher than the control group. There was no significant difference between the mean scores of the physician- and nurse-educated groups.

Table 2 displays the results of compliance with a return appointment. All three study groups were significantly improved over the control group. The nurse-educated group's compliance was also significantly better than the physician-educated group.

DISCUSSION

This study compared postintervention knowledge and behavior (compliance) of patients given the same educational material in three different methods. There was an overall significant difference in postintervention knowledge as demonstrated by analysis of variance. Regarding knowledge gain, both the nurse- and physician-educated groups attained significance compared with control. The nurse-educated group also attained significance compared with the handout-only group. Results in this study support the concept that patient education is not simply handing out a pamphlet or a booklet; it may be improved when there is some embellishment by a health professional. Roberts et al,¹⁴ with a self-teaching booklet on hypertension, and Moore et al,¹⁵ with a self-care book, found similar results.

The physician-educated, nurse-educated, and handout-only groups all had significant

improvements in compliance with a scheduled return appointment. Both Robbins¹⁶ and Barron¹⁷ have reviewed the literature on patient compliance and failed appointments. There is continued differences of opinion in the literature regarding whether patient education consistently improves compliance. Studies by Glowgow¹⁸ and Roberts et al¹⁹ support this study's findings that earnest communication and education can produce a significantly beneficial effect on patient appointment-keeping behavior. Most recently, Finney et al⁸ found no improvement in follow-up appointment rates, but a significant improvement was found in amount of medication taken when subjects received a self-monitoring calendar, a one-page educational handout plus discussion, and a telephone reminder.

CONCLUSIONS

The first hypothesis of this study was supported by the results. When compared with physicians, nurses presented the same patient educational material with equal effectiveness in knowledge gain and greater effectiveness in follow-up compliance. This finding suggests the office nurse can certainly be a valuable ally in promoting patient education in the family physician's office. The second hypothesis was only partially supported. The consistent use of an educational handout, even without embellishment, did not

result in increased knowledge but did lead to improved compliance over baseline. This finding would suggest using a handout educational tool is better than doing no patient education whatsoever.

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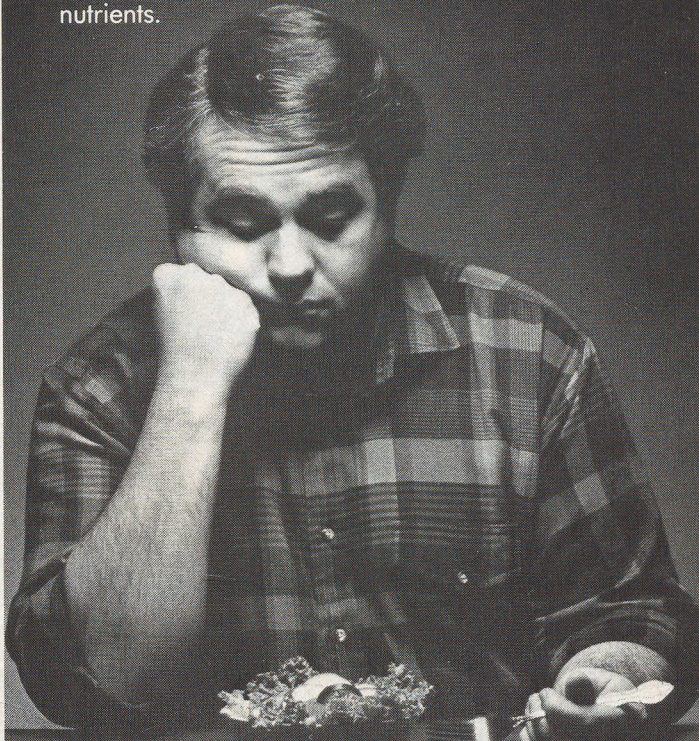
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