Nutrition knowledge and practices of physicians in a family-practice residency program: the effect of an education program provided by a physician nutrition specialist¹–⁴

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ABSTRACT  The purpose of this study was to determine the effects of a nutrition-education program provided by a physician nutrition specialist in a family-practice residency program on residents' and faculty members' nutrition knowledge and nutrition-related patient care, their patients' perceptions of the importance of nutrition, and the physicians' dietary patterns. The nutrition specialist provided recommendations for nutrition patient-care practices to the physicians for 6 mo. Pre- and post-intervention assessments included 1) nutrition exams for physicians and patients, 2) patient questionnaires concerning attitudes towards nutrition, 3) chart reviews, and 4) diet records for physicians. The educational intervention caused a small but statistically significant (P < 0.01) increase in physicians' nutrition-knowledge scores and a significantly higher (P < 0.05) frequency of physicians discussing nutrition and recommending diets for their patients. Effects were greater among residents than among faculty members. The results suggest that a physician nutrition specialist can provide effective nutrition education within a residency program.  


KEY WORDS  Nutrition education, clinical-nutrition training, residency training, family practice

Introduction

Nutrition is an important aspect of medical care and is a contributing factor to 8 of the 10 leading causes of death in the United States (1).

In 1962 the Council on Foods and Nutrition held a conference on Nutrition Teaching in Medical Schools (2) in which they recommended that nutrition education be required in the curriculum of all medical schools and in all residency training programs. Nutrition educators have agreed on core competencies and content areas in clinical nutrition that should be included in medical school curricula (3, 4), but progress toward more widespread nutrition education for physicians has been slow (5, 6). As of 1987 only 20% of all medical schools had a required free-standing course in nutrition (7).

Nutrition education in residency programs is also limited. In a recent survey completed by 787 US residency-program directors (8), of eight components that were endorsed by respondents to be important for effective nutrition training in residency programs, only two components (a multidisciplinary nutrition-support service and an outpatient nutrition clinic with registered dietitian-provided services) were present in > 50% of the programs.

Family practice has taken the lead among the specialties in recognizing the importance of nutrition education for residents. Nutrition has been required in the curriculum for all family-practice residents since 1983 (9). Despite the development of nutrition curricular guidelines by the Society of Teachers of Family Medicine (10), a survey of 258 family-practice residency programs (11) revealed that < 50% of the programs included a formal (undefined in the paper) nutrition curriculum for their residents. In addition, family-practice residency programs have been found to be unlikely to include the components that residency directors considered to be important for effective nutrition training (8).

Much of the nutrition education in family-practice residency programs is provided by dietitians (11–16). Among four family-practice residency programs that included a nutrition curriculum provided by nutrition educators of varying qualifications (three registered dietitians—two with master's degrees and one family nurse practitioner) (17, 18), residents had a low degree of nutrition knowledge, which was not significantly different from the nutrition knowledge among residents in programs without a nutrition curriculum. Family physicians whose residency training included nutrition have been found to have more favorable opinions toward nutrition than those whose training did not include nutrition (19). The degree of nutrition knowledge has been found to be low among physicians in practice (20), including family physicians (21).

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One of the factors that has been determined to be important for nutrition training in residency programs is the presence of a physician nutrition specialist to serve as a role model (8, 22, 23). The physician nutrition specialist may help the residents to recognize that nutrition is not only within the realm of dietitians, and that they should assume more responsibility to include nutrition in their own patient care. The recommended core educational guidelines on nutrition for family-practice residents state that "a family physician with a special interest in nutrition should serve as a role model for residents" (24). However, one study has been reported in which family-practice faculty were unable to help residents incorporate in their patient care the nutrition knowledge and skills taught to them in a series of nutrition seminars given by a nonphysician nutritionist, because the family-practice faculty had no formal nutrition training (25). The effect of a physician nutrition specialist with training in family practice serving as a role model in a family-practice residency program has not been tested.

The purpose of this study was to determine the impact of a physician nutrition specialist in a family-medicine residency program on residents' and faculty members' nutrition knowledge and patient-care practices, on their patients' nutrition knowledge and perceptions of the importance of nutrition, and on the physicians' dietary patterns. The hypotheses were that teaching by a physician nutrition specialist in a family-practice residency will result in 1) an increase in the physicians' degree of nutrition knowledge and an increase in the frequency with which physicians discuss nutrition-related issues with patients, and in turn 2) an increase in the patients' nutrition knowledge and in their perceptions of the importance of nutrition in health maintenance, and 3) a change in the physicians' own eating patterns to more closely approximate current recommendations for low-fat, low-cholesterol, and low-sodium diets.

Subjects and methods

Subjects

The seven faculty members and nine residents in the University of Alabama at Birmingham (UAB) Department of Family Practice were included in the study. The patients involved in the study were family-practice clinic patients aged ≥ 15 y who were willing to complete the study's data-collection questionnaire.

Intervention

From November 1990 through April 1991, a physician with specialized nutrition training (a second year clinical fellow in the UAB Department of Nutrition Sciences with an MS in clinical nutrition and residency training in family practice) previewed charts of patients scheduled to be seen in the family-practice clinic. Removable notes containing recommendations to the physicians concerning nutrition-related issues that should be discussed with the patients were placed in the previewed charts. The preview process included a brief health-risk appraisal based on age, sex, height and weight, family history, lipid concentrations, blood pressure, medical history, and smoking history. A notation was included when family history or height was not included in the chart. When no cholesterol concentration within the previous 5 y was available, screening was recommended.

From the health-risk appraisal, a patient's susceptibility to nutrition-related diseases was indicated and individualized nutrition recommendations were made, which included a suggested referral to the clinic dietitian for intensive nutritional counseling when indicated. For hyperlipidemic individuals, a repeat measurement of lipid concentrations or drug therapy was suggested when appropriate. Recommendations for regular aerobic exercise were included as a component of weight control. Smoking cessation was also addressed because of its importance in the prevention of coronary heart disease (CHD), and it is included in the protocol of the National Cholesterol Education Program (NCEP) (26). When no specific nutrition-related problems were identified, it was suggested that a prudent diet be recommended.

The nutrition specialist was available for consultation in the clinic 6–8 half-day sessions per week during the intervention, and there was discussion with the primary physicians about patients, especially those with serious problems (ie, those with malnutrition, severe hyperlipidemia, and multiple risk factors for CHD, and elderly anemic patients treated with iron without evaluation for blood loss). Because many of the family physicians indicated that time limitations were a barrier to inclusion of nutritional counseling in their patient interactions, a handout was developed describing healthy dietary patterns that could be described to patients rapidly. This was distributed to all the family physicians and methods were discussed for incorporating brief dietary recommendations into patient care within the time constraints of a clinic visit. Nutritional counseling for patients was provided by the nutrition specialist when requested by the primary physician. This was done together with the primary physician when possible. The nutrition specialist participated in family-practice inpatient rounds once a week during the 6-mo intervention, in order to discuss nutritional care of the hospitalized patients with the inpatient team. The nutrition specialist also gave a lecture to the residents and faculty on commonly seen nutrition-related diseases and on current recommendations for healthy diets.

Study design

This study was constructed to include a five-component assessment at preintervention (the 2-mo period immediately before the intervention) and at postintervention (the 2-mo period immediately after the 6-mo intervention). The five components were 1) physicians' degree of nutrition knowledge as determined by written exams, 2) patients' nutrition knowledge as determined by written exams, 3) patients' perceptions of the importance of nutrition in health maintenance as determined by self-report questionnaires, 4) frequency of physicians' discussions of nutrition-related issues with patients as determined from chart reviews, and 5) physicians' eating patterns as determined by 3-d diet records. The same 16 physicians participated in the preintervention and postintervention assessments, whereas the data obtained on patients were based on separate subject groups. Because of the logistical problem of obtaining an adequate repeat sample that would have been needed for paired sample analysis, patients who had completed the questionnaires and tests before the intervention were not retested after the intervention. This procedure also had the effect of avoiding contamination of results by the effects of repeated testing.
Nutrition-knowledge assessment

The nutrition knowledge examination for physicians contained two components. Forty questions were selected from the UAB nutrition test-item bank (27) to test pertinent clinical-nutrition knowledge. An additional 20 questions were written to test practical nutrition knowledge concerning specific food choices (eg, which foods have more fat or sodium). The clinical- and practical-nutrition exam scores were combined to obtain a total nutrition score for the physicians. The 20-item practical-nutrition exam was also given to the physicians' clinic patients to test their nutrition knowledge after they were seen by the physician. Because these 20 questions were previously untested in a research protocol, they were reviewed by four physician nutrition specialists and two dietitians from the UAB Department of Nutrition Sciences to evaluate face and content validity, and then they were pilot-tested with three UAB medical residents, four employees from the UAB Department of Nutrition Sciences, and four patients from the UAB Nutrition Clinic.

Patient measures, chart reviews, and physician diet records

A 10-item questionnaire was developed to assess whether patients had any questions related to nutrition, whether their physicians had discussed nutrition with them, their degree of satisfaction with any discussions of nutrition, and their perceptions of the importance of nutrition to their health. The questionnaire included the practical-nutrition knowledge test described above. The self-administered questionnaire was given to one group of patients who were seen in the family practice clinic before intervention during September and October, 1990, and to a second group of patients after intervention during May and June 1991. All patients completed the questionnaire immediately after they were seen by their physician.

A chart review of patients seen in the family-practice clinic during the 2-mo period before and after intervention was performed to determine the frequency with which physicians documented discussion of nutrition-related topics in care plans. Charts from 10% of patients seen by each physician (or a minimum of 10 charts) were reviewed. Charts were chosen by even interval from a computer-generated list of all patients who had been seen in the clinic during the preintervention period and from the daily lists of patients seen in the clinic by each physician during the postintervention period. A maximum of two charts for each physician on the same day was included. A single patient's chart was not reviewed twice for the same physician during the 2-mo interval either before or after intervention. A chart was excluded if the patient was admitted to the hospital, was sent to the emergency room, or was seen for a previously scheduled procedure. For each chart, diagnoses were recorded and the presence or absence of documentation of nutrition discussion with patients or referral to the clinic dietitian were recorded.

Each physician was asked to complete diet records for 3 consecutive days before and after intervention. The diet records were analyzed by using the Ohio State University Nutrient Data Base System (28).

Statistical analyses

All data analyses were performed with the program SPSS (release 4, 1990; SPSS Inc, Chicago). Physicians' nutrition knowledge on pretests and posttests were compared by t tests for paired samples. Patients' self-report data were compared by using Pearson chi-square tests, and their nutrition test scores were compared by using independent-groups t tests. Physicians' knowledge scores were also correlated (Spearman correlation coefficients) with those of their physicians. Pre- and postintervention chart-review data were compared by using Pearson chi-square tests. Physicians' pre- and postintervention dietary data were compared by t tests for paired samples and Pearson chi-square tests.

Results

Characteristics of physicians and patients

Two faculty members did not complete both pretest and posttest nutrition-knowledge exams. At their request, charts of two faculty members were not previewed by the nutrition specialist during the intervention period; however, their charts were included in the preintervention and postintervention chart reviews.

The patient questionnaires were completed by 149 patients before intervention and 160 patients after intervention. The preintervention sample consisted of 77% females and 23% males with a mean (±SD) age of 40 ± 15 y. Fifteen percent reported a nutrition-related reason for their visit (obesity, hypertension, diabetes, hyperlipidemia, or heart disease). The postintervention sample consisted of 67% females and 33% males with a mean (±SD) age of 40 ± 13 y. Twenty-one percent reported a nutrition-related reason for their visit.

Physicians' nutrition knowledge

There was a small but significant increase in mean total test scores for all 14 physicians and for the subgroup of 9 residents (Table 1). Faculty members' total scores also increased but the change was not significant. Faculty members had consistently higher mean total-and practical-nutrition knowledge scores than did residents, both at pretest and posttest (P < 0.02). The test-retest reliability for all physicians' total scores was 0.89. The intervention emphasized the role of nutrition in chronic disease prevention and obesity. When only the test items related to these topics were evaluated, there was a greater increase in test scores from preintervention to postintervention among the residents [+4.1% (P < 0.005) on disease prevention and obesity items vs +2.4% (P < 0.02) on the complete exam] and among the entire group of 14 physicians [+3.7% (P = 0.001) vs 2.6% (P < 0.005)].

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Nutrition-knowledge scores of family-practice physicians before and after nutrition-education intervention*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preintervention</td>
</tr>
<tr>
<td>%</td>
<td></td>
</tr>
<tr>
<td>All physicians (n = 14)</td>
<td>73.1 ± 1.5</td>
</tr>
<tr>
<td>Residents (n = 9)</td>
<td>70.6 ± 1.6</td>
</tr>
<tr>
<td>Faculty (n = 5)</td>
<td>77.7 ± 1.7§</td>
</tr>
</tbody>
</table>

* x ± SEM on a 60-item exam (40 clinical plus 20 practical-knowledge items).  
†† Significantly different from pretest: †P < 0.01. ††P < 0.05.  
§ Significantly different from residents, P < 0.01.
Patients' nutrition knowledge

Patients' nutrition-knowledge scores at postintervention were slightly but significantly higher than at preintervention (Table 2). The mean nutrition-knowledge score of the subgroup of patients seen by residents after intervention was significantly greater than at preintervention. The mean nutrition-knowledge score of patients seen by faculty members was also higher after intervention, but the change was not significant. There was no significant correlation between nutrition-knowledge scores of the patients and their physicians. Before intervention, 52% of patients scored higher than the physician with the lowest score on the practical-nutrition exam, and 7% of patients scored higher than the mean physician score. After intervention, 42% of patients scored higher than the physician with the lowest score on the practical-nutrition exam, and 6% of patients scored higher than the mean physician score. Before intervention, patients were more knowledgeable than were physicians on 30% of the questions. After intervention, patients were more knowledgeable on only 15% of the items.

Patients' nutrition-related attitudes and events

As shown in Table 3, there was a significant change in the frequency that physicians asked their patients about diet or nutrition. There was also a significant change in the frequency that physicians recommended diets.

Both before and after intervention, patients having concerns about diet or nutrition were significantly correlated with 1) asking their physicians about diet or nutrition (preintervention $r = 0.49$, $P < 0.001$; postintervention $r = 0.50$, $P < 0.001$); 2) their physicians asking them about diet or nutrition (preintervention $r = 0.36$, $P < 0.001$; postintervention $r = 0.34$, $P < 0.001$); and 3) agreeing that eating habits affected health (preintervention $r = 0.21$, $P < 0.05$; postintervention $r = 0.20$, $P < 0.05$). After intervention, having a dietary concern was also significantly correlated with patients receiving dietary recommendations by their physicians ($r = 0.32$, $P < 0.001$).

To control for the potential confounding effects of a nutrition-related diagnosis on physicians' nutrition-care practices, the patient questionnaire data were analyzed according to whether the patients reported a nutrition-related reason for the clinic visit (Table 4). In response to the question, “Did your doctor ask you about your diet or nutrition today?”, the frequency of positive responses was significantly higher after intervention among patients without a nutrition-related reason for clinic visit. Patients who did have a nutrition-related reason for their clinic visit had a higher frequency of positive responses to this question, but there was no pre- vs postintervention difference for this group. Intervention resulted in a significantly higher percent of patients reporting that their physicians recommended a diet if they had a nutrition-related reason for the clinic visit.

Before intervention, more patients seen by faculty members, as compared with residents, felt that it was important to follow the diet recommended by their physician. However, after intervention residents' patients showed significantly higher ($P < 0.001$) ratings of the importance of following the recommended diet, to the degree of that of faculty members' patients (data not shown).

Chart reviews and physicians' dietary patterns

There was a significantly ($P < 0.05$) lower frequency of referral of patients to the clinic dietitian at postintervention compared with preintervention (5.8% vs 10.0%). Chart documentation of discussion of nutrition also tended to be higher (11.4% vs 13.8%) after intervention than before intervention, as was discussion of abnormal cholesterol concentrations (33.3% vs 44.4%), but the differences were not statistically significant. There was no correlation between pre- or postintervention physicians' nutrition-knowledge scores and frequency of referral to the dietitian.

Residents improved their dietary patterns by tending to decrease percent of energy from fat, percent of energy from saturated fatty acids, and cholesterol and sodium intakes after intervention, but the differences between mean pre- and postintervention intakes were not significant. Six of the nine residents improved in at least three of the four categories. Sixty-seven percent of the residents ($P < 0.05$) improved by decreasing their percent of energy from saturated fatty acids.

Only one of the five faculty members who submitted diet records showed improvement in at least three of the four categories. In fact, there was a significant ($P < 0.01$) increase in their percent of energy from saturated fatty acids. There were no significant differences in percent of energy from fat, percent of energy from saturated fatty acids, or cholesterol or sodium intakes before and after intervention when all physicians' intakes were examined.

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**Table 2**

Patients' nutrition-knowledge scores before and after nutrition-education intervention for their physicians*

<table>
<thead>
<tr>
<th>Physician type</th>
<th>Preintervention</th>
<th>Postintervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>All</td>
<td>46.4 ± 1.3 [149]</td>
<td>50.2 ± 0.9 [160]†</td>
</tr>
<tr>
<td>Residents</td>
<td>44.9 ± 1.9 [39]</td>
<td>50.5 ± 1.3 [68]†</td>
</tr>
<tr>
<td>Faculty</td>
<td>47.7 ± 1.5 [107]</td>
<td>50.0 ± 1.3 [92]†</td>
</tr>
</tbody>
</table>

* † ± SEM; n in brackets.
† Significantly different from preintervention, $P < 0.05$.

**Table 3**

Patients' reported nutrition-related attitudes and events before and after nutrition-education intervention for their physicians*

<table>
<thead>
<tr>
<th></th>
<th>Preintervention</th>
<th>Postintervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating habits affect my health</td>
<td>95.3 [127]</td>
<td>92.7 [137]</td>
</tr>
<tr>
<td>Doctor asked about diet or nutrition</td>
<td>26.2 [145]</td>
<td>39.5 [152]†</td>
</tr>
<tr>
<td>Doctor recommended diet</td>
<td>20.0 [135]</td>
<td>33.1 [145]†</td>
</tr>
<tr>
<td>Important to follow</td>
<td>95.7 [23]</td>
<td>93.0 [43]</td>
</tr>
<tr>
<td>Diet or nutrition questions answered satisfactorily</td>
<td>88.5 [26]</td>
<td>91.7 [36]</td>
</tr>
</tbody>
</table>

* Percent of patients responding "yes" or "agree" ("agree" plus "strongly agree").
† Significantly different from preintervention, $P < 0.05$. 
NUTRITION EDUCATION IN FAMILY PRACTICE

TABLE 4
Patients' reported nutrition-related attitudes and events before and after nutrition-education intervention for their physicians, controlled for nutrition-related reason for clinic visit*

<table>
<thead>
<tr>
<th></th>
<th>Not a nutrition-related visit</th>
<th>Nutrition-related visit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preintervention</td>
<td>Postintervention</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating habits affect my health</td>
<td>94</td>
<td>92</td>
</tr>
<tr>
<td>Doctor asked about diet or nutrition</td>
<td>23</td>
<td>36†</td>
</tr>
<tr>
<td>Doctor recommended diet</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Important to follow recommended diet</td>
<td>94</td>
<td>91</td>
</tr>
<tr>
<td>Diet or nutrition questions answered satisfactorily</td>
<td>96</td>
<td>88</td>
</tr>
</tbody>
</table>

* Percent of patients responding "yes" or "agree" ("agree" plus "strongly agree").
†† Significantly different from preintervention: †P < 0.05. ‡P < 0.01.

Discussion

To our knowledge this study was unique in that a physician nutrition specialist provided nutrition education to residents and faculty members within a family-practice residency program. The nutrition-education intervention significantly increased the following: 1) nutrition knowledge of physicians, 2) nutrition knowledge of their patients, 3) patients' beliefs that it was important to follow a diet recommended by the physician (at least when seen by a resident), and 4) the likelihood that physicians ask their patients about nutrition and make diet recommendations. At the same time, there was a significant decrease in the frequency with which physicians referred patients to the clinic dietician.

Most of the improvement in physicians' nutrition-knowledge scores occurred on the practical portion of the written exam, which dealt with specific food choices as opposed to principles of nutrition. During the intervention the discussions between the nutrition specialist and the family physicians often included specific information about healthy food choices. This is the information that patients need to improve their eating habits (29).

On average, the patients in this study demonstrated poor nutrition knowledge, which suggests that they may be unable to make healthy food choices.

Despite the patients' poor nutrition knowledge, note that before intervention 52% of patients scored higher than the physician with the lowest score on the practical nutrition exam and 7% of patients scored higher than the average physician. Patients may rely on physicians to provide them with nutrition information, and physicians should be more knowledgeable about nutrition than their patients, but these results suggest that this is not necessarily true.

After intervention, the frequency with which physicians documented in their charts that they discussed nutrition with their patients had not increased significantly. The physicians may, however, have increased the frequency of nutrition discussions with patients without actually documenting this in their care plans, as was found in another study comparing patients' reports to physicians' documentation of health-promotion counseling (30).

During the intervention, several of the physicians indicated verbally that they frequently discussed nutrition with their patients. On many occasions, when specific charts were brought to their attention, they claimed that they had discussed nutrition but there was no documentation of these discussions in the charts.

The significant increase in the frequency with which physicians recommended specific diets, particularly for patients with nutrition-related reasons, may have occurred because more post-intervention patients had nutrition-related reasons for the clinic visit. However, the frequency of dietary recommendations increased more than did the percentage of patients who reported a nutrition-related reason for the visit. There was also a significant increase after intervention in the frequency that physicians asked the patients about nutrition, particularly the patients who did not have a nutrition-related reason for the visit. This important change in physician behavior is likely to be due to the intervention that included frequent reminders to recommend a prudent diet to patients even if they had no nutrition-related problems.

Changes in physicians' nutrition-care practices are important if they are to influence patients' nutritional behavior.

The chart review indicated a significant decrease in the frequency with which patients were referred to the clinic dietician. The reason for this is unknown, particularly because dietitian referral was often suggested during the intervention. However, it is possible that the physicians felt more comfortable discussing nutrition with patients after the intervention and did more nutritional counseling on their own. The reports from the patient questionnaires suggest that this might be true.

Interest in nutrition among the physicians in the Department of Family Practice was variable, as was receptiveness to the recommendations of the physician nutrition specialist. Most of the faculty members stated that nutrition was important to patient care. Some of the residents agreed that nutrition was important, but many of them claimed that their greatest barrier to including nutrition in patient care was a lack of time. Lack of time is frequently cited by physicians as a barrier to their discussing health promotion and disease prevention with their patients (31, 32). Other reported deterrents are that health promotion and disease prevention are not emphasized in medical training (32, 33), and that physicians have little confidence in their ability to change the health behavior of their patients (31-33). A program that includes emphasis on nutrition may increase physicians' beliefs that they are capable of incorporating more nutrition in patient care.
If nutrition education in a residency program is provided by a physician nutrition specialist serving as a role model, this may help the physicians to recognize that dietitians are not the only ones who can provide nutrition information to patients, and that they should assume more responsibility for including nutrition in their own patient care. For many years the UAB Department of Family Practice has employed a registered dietitian who has been responsible for nutrition counseling for patients and nutrition education for the residents and faculty. The baseline data collected in this study reflect the degree of nutrition knowledge and practices of physicians with the dietitian serving as the nutrition educator. Although there were notable improvements as a result of this physician-provided intervention, this does not indicate that a dietitian cannot be an effective nutrition educator for physicians. This intervention was more intensive than the dietitian’s educational program, and the study was not designed to compare physician and dietitian role models. To make such a comparison, it would be necessary to construct a study in two similar residency programs with the same nutrition education intervention provided by a physician in one residency program and by a dietitian in the other residency program.

Other explanations for the increases in nutrition knowledge and nutrition-care practices of the physicians must be considered. The most likely threats to internal validity are concurrent nutrition-related events, resident maturation, and repeated testing. The only nutrition-related concurrent events that might have confounded the study results were three lectures given by the clinic dietitian. However, two of the lectures were unrelated to the issues emphasized during this intervention and therefore would have been unlikely to affect the assessments in this study, and the single related lecture would not be expected to result in the observed changes. Maturation must be considered because the effects were greatest for the residents. Maturation in medical knowledge and skills would be expected in a 6-mo period during residency, but maturation in nutrition knowledge and care would not be expected with limited nutrition education in the curriculum. Repeated testing could have affected the results on the physicians’ knowledge tests; however, the correct answers to the questions were not provided, and it is unlikely that the physicians would have looked up the answers to the questions after the pretest. Therefore, these potential threats to internal validity are not likely to have a significant influence on the demonstrated positive effects.

The greatest impact of the nutrition-education intervention was on the residents. There was a trend toward improvement in the dietary patterns of the residents and no improvement, and perhaps some deterioration, in the faculty members’ dietary patterns. This goes along with the fact that the other aspects of the intervention appeared to have a greater impact on the residents than on the faculty members. This suggests that residency is an appropriate time for an intensive nutrition-training program. Nutrition knowledge of physicians has been found to decrease with an increase in the number of years in practice (20). If deficiencies in nutrition knowledge exist after completion of residency training, they may be difficult to correct later in a physician’s career. However, continuing medical-education programs in nutrition might be helpful in alleviating such deficiencies.

In summary, this study investigated the effects of a nutrition-education program provided by a physician nutrition specialist in a family-practice residency program. There were significant increases in physicians’ nutrition knowledge and in the frequency with which patients reported that their physicians recommended diets and discussed nutrition with them. Effects were greater for residents than for faculty members. The results suggest that a physician nutrition specialist can provide effective nutrition education within a residency program.

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References


