Study of dietetic knowledge among members of the primary health care team

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SUMMARY. There is growing emphasis on health promotion in primary care. The success of this endeavour depends in part on the ability of members of the primary health care team to provide appropriate and practical advice and support, relating to lifestyle. A study of 58 primary health care professionals was carried out in the Grampian region of Scotland to assess their nutritional knowledge and their ability to provide practical dietary advice, particularly in relation to the prevention of coronary heart disease. Overall, the primary health care workers had a broad understanding of recommendations for healthy eating, but there was some confusion over specific aspects of these recommendations. Health professionals also found it difficult to translate knowledge into practical dietary advice tailored to an individual case. If health promotion in primary care is to work effectively, the infrastructure necessary for effective training and continuing eduction has to be addressed.

Keywords: dietetics; nutrition; health professionals' knowledge; primary health care team.

Introduction

SEVERAL recent major reports have established that causal links exist between diet and a number of diseases.[1-3] These reports have also emphasized the need to alter national eating habits as a way of preventing conditions such as coronary heart disease. There is considerable evidence to suggest that in Scotland 'dietary habits fall short of those generally recommended, particularly in respect of a low intake of fruit, vegetables and wholegrain cereals, and excess fat and salt intake'.[4]

Health promotion and prevention, particularly through primary health care, is one of the key priorities of the health services in Scotland.[5,6] This shift is underpinned by the introduction of the new contract for general practitioners which requires them to offer a health check to patients aged 16–74 years at registration and when not seen during the previous three years. The aim of this consultation is to provide the opportunity for the primary care team to undertake both risk factor appraisal and health education as appropriate. Such an endeavour depends in part on the ability of members of the primary health care team to provide appropriate and practical advice and support, relating to lifestyle factors, for example diet, smoking and exercise.

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There is evidence that using general practice as a setting for promoting dietary change is both feasible and effective, particularly among men.[7] The general public also have a high regard for advice and information given by the primary care team and indeed expect to be given such information.[8,9] Yet the ability of those in primary care to give accurate, practical and consistent dietary advice appropriate to the needs of the patient has been questioned.[10,11] Applied nutrition is not a separate topic in the medical curriculum and teaching about dietetics for health visitors concentrates mainly on priority groups, such as children under five years old.

The aim of this study was to assess the nutritional knowledge and the ability to give practical dietary advice, particularly in relation to the prevention of coronary heart disease, of primary care workers in the Grampian region of Scotland.

Method

Grampian region has a population of half a million and is served by a total of 91 general practices. Ten practices were initially selected to represent the population spread within the region. Four practices were chosen from the city of Aberdeen, two from smaller towns and four from rural areas. The senior partner in each practice was approached by letter and follow-up telephone call. They were asked if the primary health care team would take part in the study. This approach was then discussed at team meetings. Three practices withdrew at this stage because of time pressures and they were replaced by similar practices.

A postal questionnaire survey of all primary care workers in all 10 practices was carried out in November 1990. Participants were requested to complete the questionnaire without assistance from other team members. The questionnaire used was based on a previously validated questionnaire,[12] which was appropriately modified following a pilot study in a large, city based practice. The questionnaire measured the nutritional knowledge and understanding of primary care workers. The questionnaire also contained a case history (Appendix 1) which was used to assess the ability to apply knowledge when giving practical dietetic advice. The quality of practical dietary advice was scored based on a validation exercise involving local dietitians.

Results

A total of 70 health professionals were invited to participate in the study and 58 took part — 26 general practitioners, 20 community nurses (11 health visitors and nine district nurses) and 12 practice nurses. All participating practices have access to the community dietetic service. Most of the 58 respondents (90%) reported giving dietary advice whenever they thought it appropriate to a particular patient as part of health promotion; 66 % of the health professionals reported giving dietary advice between one and four times a day.

Sources of information

All three professional groups mentioned basic training and scientific journals among their three most important sources of nutritional information, although rankings varied between the groups. Only 14% of respondents rated in-service training as an important source of nutritional information and, indeed, 74% of respondents had never attended an in-service study event or display on healthy eating.

General dietary knowledge

Dietary knowledge was assessed by determining whether respondents agreed with a series of commonly heard statements (Table 1). The correct answers given on Table 1 are based on information contained in published guidelines.[1,2] In general, respondents were aware of broad nutritional issues, such as eating less sugar and more fibre. However, only 33% of respondents were aware that dietary cholesterol is not the most important factor in controlling lipid levels in the blood. Of the respondents, 57% wrongly believed that strict carbohydrate reduction must be observed in a weight reducing diet and 66% wrongly thought that bran was the best treatment for constipation. Sixty nine per cent of respondents incorrectly believed that a low salt diet is routinely indicated for management of hypertension.

A score for knowledge was obtained by assigning respondents a score of plus one for a 'correct' answer, minus one for a 'wrong' answer and zero for a 'do not know' response. The median score for the 26 general practitioners was nine (range four to 11), for the 20 community nurses eight (range four to 13) and for the 12 practice nurses eight (range three to 13). There was no evidence of differences in knowledge between the three groups (Kruskal Wallis test[13]).

Application of knowledge to practical situation

A series of questions was posed to assess the ability of respondents to apply knowledge in relation to a hypothetical case history (Appendix 1). Table 2 shows that there was a wide range over which primary care professionals would initiate treatment for hypercholesterolaemia. The difference between the three professional groups regarding the cholesterol level at which dietary advice should be initiated was tested using analysis of variance, and a statistically significant difference was found ($F = 4.27$, $P<0.05$). Practice nurses had the highest mean threshold level for initiating dietary advice while community nurses had the lowest. There was no significant difference between the three groups on opinions concerning the cholesterol level at which to initiate drug treatment.

Respondents were asked to suggest three additional relevant questions which would complete the diet history. Fourteen respondents (24%) did not suggest three questions. The most commonly suggested questions concerned the use of spreads and cooking oils (66%), type of milk used (48%) and type of bread eaten (22%).

Table 2. Thresholds for the management of hypercholesterolaemia reported by respondents.

	Mean cholesterol level (range) (mmol l^{-1})
At which lipid lowering dietary advice should be given	
GPs (n = 26)	5.7 (5.2–7.7)
Community nurses (n = 20)	5.4 (5.0–6.5)
Practice nurses (n = 12)	6.3 (5.0–8.0)
At which drug therapy should be commenced in addition to dietary advice	
GPs (n = 26)	7.8 (6.3–9.0)
Community nurses (n = 20)	7.0 (6.0–9.0)
Practice nurses (n = 12)	7.3 (6.9–9.9)

n = number of respondents in group.

Quality of dietary advice

Respondents were asked to list six pieces of dietary advice to help the patient in the case history change his diet. Fourteen respondents (24%) did not list six pieces of dietary advice although all were able to list at least one piece of advice, while 40% listed at least one piece of misleading or inaccurate advice; there was some overlap between these two groups. Forty five per cent of the respondents listed weight reducing advice when it had been stated that the patient was not overweight. Only 19% of respondents correctly listed an increase in carbohydrate intake.

The quality of the dietary advice suggested was further assessed by comparing it with that suggested by the group of dietitians. Each piece of advice that coincided with the dieticians' advice received one point, advice that was not what the dietitians considered a priority was given no points, and advice considered to be inaccurate or harmful received a score of minus one. The median score for the 26 general practitioners was two (range minus two to four), for the 20 community nurses zero (range minus two to four) and for the 12 practice nurses zero

Table 1. Respondents' views on commonly heard statements.

Statement	% respondents (n = 58)			
	Agree	Disagree	Do not know	Correct answer
Most people should eat less sugar	*98*	*0*	*2*	Agree
Egg consumption should be restricted to no more than two a week	*57*	*36*	*7*	Disagree
Most people should eat more fibre	*100*	*0*	*0*	Agree
Bran is usually the best treatment for constipation	*66*	*29*	*5*	Disagree
Most people should eat less animal fat	*97*	*2*	*2*	Agree
In terms of carbohydrate intake, no more than two slices of bread and one small potato or equivalent should be eaten daily by those trying to lose weight	*57*	*33*	*10*	Disagree
Most people should stop adding salt at the table	*86*	*10*	*3*	Agree
Oily fish should be eaten less often than white fish, owing to its high fat content	*16*	*78*	*7*	Disagree
Giving up smoking causes weight gain which can cancel out the benefits of giving up	*2*	*97*	*2*	Disagree
Cholesterol in food is the most important dietary factor in controlling blood lipid levels	*50*	*33*	*17*	Disagree
The ratio of polyunsaturated to saturated fat is important in controlling blood lipid levels	*81*	*5*	*14*	Agree
In the treatment of hypertension, a low salt diet is usually indicated	*69*	*28*	*3*	Disagree
In the treatment of diabetes, calories should always be reduced	*10*	*76*	*14*	Disagree

n = total number of respondents.

(range minus six to zero). There were no significant differences between the groups (Kruskal Wallis test).

The associations between knowledge and quality of advice were assessed using Spearman's correlation coefficient. There was a statistically significant positive association between dietary knowledge and quality of advice for the community nurses (r_s = 0.47, P<0.05) and practice nurses (r_s = 0.45, P<0.05), but not for the general practitioners (r_s = 0.39).

Specific dietary advice

Following on from the case history, the application of specific dietary principles was assessed. There was near unanimous agreement (98% of the 58 respondents) that total fat and saturated fat intake should be decreased. Only 69% of respondents correctly stated that the proportion of polyunsaturated fat in the total fat intake should be increased. Twelve per cent of respondents did not appear to understand why the ratio of polyunsaturated to saturated fat is important. As already reported only 19% of respondents correctly stated that carbohydrate levels should be increased. Ninety per cent of respondents correctly stated that sugar content should be decreased and 95% that dietary fibre should be increased. Only 55% of respondents correctly stated that protein intake should remain the same, and only 53% that energy levels should stay the same.

Discussion

This study reveals that primary care workers have a broad understanding of healthy eating recommendations, for example the benefits of a high fibre–low fat diet. Closer examination of the data, however, reveals some confusion about specific aspects of these recommendations. For example, understanding of the roles of cholesterol and carbohydrates in the diet was limited. Of even greater concern was the incomplete understanding of the ways in which different aspects of dietary intake interact. For example, fewer than 20% of respondents appreciated that intake of carbohydrates should be incresed in order to replace energy lost from reducing fat intake.

It was also found that primary care workers have difficulty in translating knowledge into practical dietetic advice tailored to an individual case (the case history was realistic, representing a basic level of detail that one would expect a primary health care professional to obtain as a basis for giving dietary advice). This is a cause of concern given that two thirds of respondents reported that they give dietary advice between one and four times a day. Considerable variation existed in the reported management of hypercholesterolaemia.

There is clearly an urgent need to develop better teaching and training in the dietary aspects of coronary heart disease prevention. Basic training for primary care workers should be redesigned and in addition, continuing education courses and packs should be made available. Better coordination of services would ensure effective dialogue between primary care workers and dietitians. Medical audit should be used as a means of developing and implementing protocols for risk appraisal and management. This would ensure standardization of good practice across primary care and also provide a basis for monitoring and feedback.

If health promotion in primary care is to work effectively, the infrastructure necessary for effective training and continuing education has to be addressed as a priority. Indeed, there is increasing emphasis on training and support for primary care workers in the field of dietetics (Hunt P, Health Education Authority, Oxford, personal communication): the number of dietitians working in training and support roles has been rising; a literature review of the effectiveness of nutritional interventions has been carried out by the Health Education Authority; a variety of support mechanisms are being established by the Health Education Authority; a toolbox, 'Changing what you eat' is being developed for use by nurses; a skills training programme, 'Helping people change' is currently being piloted; and a national network to support primary health care workers in dietetics is proposed. These developments represent an encouraging response to the needs of primary care workers in the field of dietetics.

Appendix 1. Case history.

Mr X is a 54-year-old factory worker. He attended for a health check last week and was found to have a moderately raised cholesterol level. His level of triglycerides was within normal range. He is not overweight. There are many lifestyle factors you may normally wish to question but at present you are considering his diet only. You take a brief diet history, which you sketch out as follows for an average day:

07.00 hours	Cornflakes; tea; toast
10.00 hours	Sandwich (bacon, egg or cheese); tea
12.00 hours	Sandwiches; cake; tea
15.00 hours	Tea; chocolate bar
18.00 hours	Meat (roast/chops/sausages), potatoes (boiled/mashed) and vegetables or fried food including chips; pudding/pie with custard/ice cream
22.00 hours	Coffee
	Couple of pints of beer at weekends

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