

# How much do patients know? A multiple choice question paper for patients in the waiting room

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**SUMMARY.** A questionnaire about knowledge of personal preventive medicine, treatment, and the appropriate use of health services was put to a population of patients attending their doctors' surgeries. The population was probably biased toward the younger and those willing to fill in such a questionnaire. The results showed a social class gradient in knowledge and a distressing degree of ignorance on some topics. Suggestions are made for using the method in a positive educational way in practices, and for further studies with improved methods.

### Introduction

**G**ENERAL practitioners often quote the fact that the word 'doctor' means 'teacher' rather than 'healer'. All authors who have studied the consultation agree that there is an exchange of information, and therefore a teaching/learning component. Weed (1969) makes this clear by including 'Patient Education' as a sub-heading in the plan section of the 'Problem Orientated Record'. Byrne and Long (1976) throw interesting light on doctors' responses to requests for information, which suggests that these are often rejected or poorly answered. This is corroborated by studies such as those by Cartwright (1964, 1967) who showed that most people want to know as much as possible about their illness but that nearly two thirds have difficulty in getting the information they want.

Interesting light was thrown on this shortcoming by Ley and colleagues (1976) who showed (using a postal questionnaire which produced a 51 per cent response rate) that while 88 per cent of the respondents were satisfied with the information about the diagnosis, only 28 per cent were content with what they were told about the cause or treatment. This suggests that doctors are best at imparting the knowledge that they feel most interested in, or confident about, rather than that which the patient most wants. Cartwright (1964) showed that the highest amount of expressed want for information came from social class 1 and 2, a finding corroborated by Bain (1970), who found that five per cent of all consultations were solely for the acquisition of information.

The educational component of the consultation has three objectives: to satisfy the patient's natural and proper curiosity and where possible allay anxiety; to procure compliance; and to promote behaviour change toward healthier living (either in general or for risks for a particular patient).

Successful teaching must have as its basis a clear understanding by the teacher of the baseline knowledge and skills of the learner, so that the material provided is appropriate to the educational objectives on one hand and the capabilities of the learner on the other. Little, however, is known in the UK of health and disease knowledge in the patient population. Boyle (1970) found low levels of knowledge with wide variations. Questioned on knowledge about diseases, 86 per cent of his respondents could accurately describe arthritis, but only 37 per cent diarrhoea; on knowledge of medical terminology, 77 per cent could define the intestine, but only 20 per cent the stomach. Ley and Spelman (1967) reported in their book *Communicating with the Patient*

that they found that among patients filling in a multiple choice question paper (MCQ), 97 per cent were right about appendicitis but only 68 per cent about asthma.

Moore and Garraway (1977) interviewed a consecutive series of patients attending the surgery and found that while 94 per cent of the respondents knew the site of pain in myocardial infarction, fewer than half knew the character or radiation of the pain or the associated symptoms. Fewer than one third knew of the predisposing causes (obesity 32 per cent, smoking 22 per cent, lack of exercise 14 per cent, high cholesterol diet nine per cent and high blood pressure two per cent). There was a clear social class gradient, classes 1 and 2 knowing much more.

If, therefore, we are to take seriously our teaching of patients, we need to be able to assess their baseline knowledge, the ease with which they can absorb new information, and the vocabulary to be used. To a great extent, of course, this must be established patient by patient as the doctor/patient relationship evolves. Nevertheless, the establishment of parameters for the patient population would serve four purposes. First, it would provide the general practitioner with a baseline for his population and perhaps reveal local patterns of knowledge and ignorance. Secondly, it would reveal those least likely to know and least likely to ask. Thirdly, it would provide useful background information for health education projects by others. Lastly, it could in itself provide a learning opportunity for people using the service since most people who 'fill in quizzes' like to find out the answers afterwards.

Obviously the methods used in the studies quoted, either postal questionnaires or interviews by trained research staff, are not applicable to the ordinary service practice setting. Accordingly, it was decided to test the feasibility of using a short MCQ paper in the waiting room for patients attending 10 practices in which at least one principal had agreed to take part.

## Method

The original idea of this study was proposed by one of the authors (J. C.) and was included in the list of research projects advertised to all members of the Trent Faculty of the Royal College of General Practitioners in 1975. Several practices agreed to take part in the study. The authors had designed a questionnaire in the form of multiple choice questions (see Appendix 1, which also shows the percentage of answers to each question) which included questions directed at all three aspects of behaviour: that is, health maintenance behaviour, behaviour during medical treatment, and the appropriate use of the general practitioner. It was theoretically possible that some people, for instance first aid workers, might be more sophisticated than their social or educational status would lead one to expect and, therefore, two questions were included to establish the level of 'sophistication'.

As well as the 10 questions, patients were asked to

give their age, sex, and the occupation of the head of the household, from which their social status could be worked out by reference to the Registrar General's classification of occupation and social class (OPCS, 1970). No attempt was made to elicit information about their current state of health, whether they had any chronic diseases, whether they were low or high users of medical services, or any other circumstances which might alter their level of knowledge on these subjects. Each participating practitioner was asked to ensure that his receptionist put the questionnaire to as large a sample of the patients attending as possible, ideally 100 per cent consecutive series. It was recognized, however, that this was unlikely to be achieved owing to differences in waiting times, elderly people not having their glasses with them, people refusing to fill them in for other reasons, and the receptionists possibly forgetting to issue them to all patients. A more definitive study would need to ensure a more precise sampling of the population.

## Results

The participating practices obtained 664 questionnaires, ranging from 26 in one practice to 95 in another at the top end of the scale. Table 1 shows that there was a greater proportion of females filling in these papers than females consulting in the National Morbidity Survey (OPCS *et al.*, 1974). Table 2 shows that the distribution by age was roughly in accord with that obtained in the National Morbidity Survey, although a

Table 1. Study population by sex.

	Male	Female
Study population	215	441
Percentage of study population	33	67
Percentage of patients consulting in Second National Morbidity Survey	48	52

Missing responses=8.

Table 2. Study population by age.

	Under 20	20 to 39	40 to 59	60+
Study population	64	344	170	63
Percentage of study population	10	54	27	10
	0 to 14	15 to 44	45 to 64	65+
Percentage of patients consulting in Second National Morbidity Survey	26	40	22	12

Missing responses=23.

**Table 3.** Study population by social class.

Social class	1	2	3 Non-manual	3 Manual	4	5	Unclassified
Study population	49	158	80	203	71	3	45
Percentage of study population	8	26	13	33	12	1	7
Percentage of people in Trent Region	4.5	15.4	10	44.7	17.9	8	

Missing responses=55.

**Table 4.** Distribution of total scores by whole population.

Score	0	1	2	3	4	5	6	7	8	9	10
Number of respondents	8	33	51	100	113	123	99	83	41	12	0
Percentage respondents	1	5	8	15	17	19	15	13	6	2	0

Mean 3.68, standard deviation 1.54.

**Table 5.** Percentage correct for each question by sex.

Question	1	2	3	4	5	6	7	8	9	10
Male respondents percentage correct	6	62	52	41	31	80	22	44	23	54
Female respondents percentage correct	13	75	71	51	47	85	18	54	28	56

direct comparison was not possible owing to incompatible age groupings. A slightly smaller number of patients was noted in the oldest age group where one would expect more frequent consultations, but this may have been due to an unwillingness to take part in the study. Table 3 shows that the distribution by social class corresponded only poorly with that in Trent Region as a whole, with 47 per cent of the study population classified as 3 Non-manual and above (30 per cent Trent Region), and 46 per cent classified as 3 Manual and below (70 per cent Trent Region), though it is to be noted that there were 55 respondents who did not enter the occupation of the head of the household. However, it can be seen from Tables 1 and 2 that the population was biased slightly toward the younger and heavily toward the female patients attending the surgeries.

In considering individual questions, Appendix 1 shows the distribution of answers for each question. Of the wrong answers, 20 per cent of respondents who thought that lumps due to cancer were always painful, and the fact that the question about blood pressure symptoms showed a random scatter in the selection of correct answers, is alarming. As many as 41.5 per cent of respondents thought that dermatitis was contagious. On the other hand, it was reassuring to know that 86.2 per cent were correct in knowing that smoking was associated with lung cancer, bronchitis, and underweight babies. It was interesting that the largest number of respondents believed that rheumatism was a crippling disease, probably voicing what are commoner fears among the general population than doctors realize.

Table 4 shows that the distribution of scores had a normal range within the whole population, but within this certain trends are clear. Table 5 shows that a larger proportion of the female respondents gave correct answers to every question, except the one about blood pressure, than men. With regard to age, Table 6 shows that the 20 to 39 age group had the highest scores for most of the questions, but that the under 20s scored best on the management of nosebleeds and lack of symptoms in hypertension, while the over 60s scored best on glaucoma and in choosing the contagious one of the group of diseases. Table 7 demonstrates a gradient in the mean scores by social classes 1 to 5. Similarly, the prevalence of sophistication (ability to answer questions 4 and 10) is related to social class, the gradient being shown in Table 8.

## Discussion

Because patients attending the surgery are not representative of the general population, and it was not feasible to administer the questionnaires to everyone attending the surgery or a properly constructed random sample, it is not possible to draw wide conclusions as to the state of the public knowledge of health.

Unfortunately, no recording was made of patients who refused to fill in the questionnaire, so it is not possible to say how acceptable this method of assessing a patient's knowledge is. However, it is reasonable to expect that those people already attending their doctor—and, of those who are willing to fill in a questionnaire like this—would be most knowledgeable

**Table 6.** Percentage correct for each question by age group.

Question	1	2	3	4	5	6	7	8	8	10
Under 20	11	73	50	31	50	75	25	47	25	52
20 to 39	12	76	69	42	42	90	19	48	28	58
40 to 59	11	64	67	55	44	80	19	49	22	52
60 and over	6	57	52	64	22	63	19	63	22	44

**Table 7.** Total score by social class.

Social class	0	1	2	3	4	5	6	7	8	9	10	Mean	Standard deviation
1	0	0	1	3	7	9	15	8	4	2	0	4.26	1.30
2	0	6	8	20	24	30	26	27	13	4	0	3.91	1.49
3 non-manual	2	2	10	9	13	14	12	11	4	3	0	3.66	1.68
3 manual	1	6	13	35	45	40	29	18	13	3	0	3.70	1.43
4	1	9	6	13	9	12	10	11	0	0	0	3.34	1.47
5 (only 3)	1	0	0	0	1	0	0	0	1	0	0	3.33	3.05
Unclassified	1	6	6	9	6	7	4	2	4	0	0	3.13	1.78

about matters of health and disease. Yet even among these, and among the upper social classes represented in this skewed population, knowledge was poor and got poorer as the social class scale descended. Results show that there is a great need for patient education which would perhaps come better from patients' own doctors rather than from outside agencies such as the DHSS, Health Education Council, or area health authority.

### Conclusions

This study has demonstrated the feasibility of using a multiple choice question paper as a means of estimating the level of health knowledge of a patient population. It has demonstrated that even among people most likely to have a reasonable working knowledge of health and illness levels of knowledge are disappointingly low. There is a trend toward women knowing more than men

about health. There is a social class gradient whereby level of knowledge descends in parallel with social class. By and large, the people least likely to have satisfactory knowledge are males over 39 of social classes 4 and 5, who could therefore be deemed to be at risk in terms of health because of lack of knowledge.

It is desirable that this survey should be repeated on a larger scale with careful attention given to selection of patients to obtain a representative sample. Refusals should also be recorded and analysed to give a better idea of acceptability. If possible, a parallel survey of people not attending their doctor should be undertaken to see if those who are in the 'patient role' have an enhanced level of knowledge because of it. The effectiveness of learning by provision of the correct answers should be tested. An investigation should be made into the correlation between levels of knowledge and actual behaviour in matters of health.

There was no anecdotal evidence from doctors or receptionists of patient resistance, objections, or complaints. It is well known that many people enjoy questionnaires and a modification of this method might provide a useful vehicle for health education. Patients could be provided with question papers like this and, at the same attendance, could draw an answer sheet from the receptionist to see how well they had done, and, in doing so, learn the 'right' answers. On seeing them later, their doctor could ask them how they had scored and clear up any problems that arose.

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**Table 8.** 'Sophistication' by social class (percentages are given in brackets).

Social class	Partly		Sophisticated
	Unsophisticated	sophisticated	
1	7 (14)	13 (27)	29 (59)
2	34 (21)	53 (33)	71 (45)
3 non-manual	27 (34)	30 (38)	28 (35)
3 manual	67 (33)	74 (36)	62 (30)
4	35 (49)	16 (23)	20 (28)
5 (only 3)	2 (67)	—	1 (33)
Unclassified	21 (47)	15 (33)	9 (20)

Unsophisticated: people who got both question 4 and 10 wrong.

Partly sophisticated: people who got either question 4 or 10 correct.

Sophisticated: people who got both question 4 and 10 correct.

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### Appendix 1

The questionnaire, showing number of respondents indicating each choice.

1. Antibiotics	<i>Number (Percentage)</i>	
Should never be taken with alcohol	434	(66.3)
Are good treatment for diarrhoea	17	(2.6)
Are used to relieve pain	97	(14.8)
*Can give rise to diarrhoea	71	(10.8)
Abstentions	9	(6.8)
Multiple answers	36	
	664	100
2. Lumps due to cancer		
Are usually painful	133	(20.5)
Are never found in patients under 40	15	(2.3)
*Are usually painless	472	(72.7)
Mean that the condition is incurable	20	(3.1)
Abstentions	15	(6.3)
Multiple answers	9	
	664	100

3. Children with a feverish cold		
Need a doctor immediately	125	(19.0)
Should be nursed in a darkened room	12	(1.8)
*Can often be helped by aspirin	429	(65.1)
May catch pneumonia if taken outside	73	(11.1)
Abstentions	5	(3.8)
Multiple answers	20	
	664	100
4. Glaucoma is		
A tumour of the large intestine	75	(13.0)
*A common cause of blindness	315	(54.5)
A state of deep unconsciousness	148	(25.6)
A congenital skin disease	39	(6.7)
Abstentions	86	(13.1)
Multiple answers	1	
	664	100
5. Nosebleeds are best treated by		
*Squeezing the soft part of the nose for five minutes	277	(43.1)
Putting a key down the back	36	(5.7)
Putting the head well back and opening the mouth	222	(34.9)
Lying the patient flat	92	(14.5)
Abstentions	28	(5.6)
Multiple answers	9	
	664	100
6. Smoking is not associated with		
*Cataracts	550	(86.2)
Lung cancer	20	(4.5)
Bronchitis	18	(2.8)
Underweight babies	24	(3.8)
Abstentions	26	(6.5)
Multiple answers	17	
	664	100
7. People with raised blood pressure		
*Are usually not aware of it	130	(20.2)
May notice flushing of the skin	115	(17.9)
Usually have headaches	171	(26.6)
Should avoid alcohol	200	(31.1)
Abstentions	21	(7.2)
Multiple answers	27	
	664	100
8. Which condition can be spread by direct contact?		
Dermatitis	266	(41.5)
Cancer of the rectum	11	(1.7)
*Ringworm	336	(52.4)
Epilepsy	11	(1.7)
Abstentions	23	(6.1)
Multiple answers	17	
	664	100

9. Patients with rheumatism

Should avoid acid food	100	(15.7)
Often get severely crippled	239	(37.6)
*Should avoid weight increase	176	(27.7)
Are helped by salts in their drinking water	96	(15.1)
Abstentions	29	(8.0)
Multiple answers	24	
	664	100

10. Which of the following are found in the chest?

The patella	63	(10.5)
The cerebellum	79	(13.2)
The epiglottis	86	(14.4)
*The aorta	367	(61.4)
Abstentions	66	(10.4)
Multiple answers	3	
	664	100

\*Denotes 'right' answer.

**Battered women**

6.16. Table 14 shows that 47 per cent of those who had told their doctor about their problems felt that they had received no help. One might ask what help doctors could have given. Yet some *were* perceived as being helpful and these were, on the whole, those who considered the problem first and foremost as a marital problem. These doctors were perceived as going to the roots of the problem instead of simply being concerned with the exterior symptoms; they were also perceived as understanding the patient's own point of view. Doctors who persisted in treating only the medical aspects, and offering only medical solutions, were more likely to be perceived as being unhelpful.

6.17. The evidence presented here confirms the recommendation of the Select Committee (Report on Violence in Marriage 1975, xvi) that "it is not, in our view, sufficient for doctors just to treat physical injuries and dispense tranquillizers. We recommend that medical schools and nursing colleges should also give special attention to the social dynamics of family life, and to the medical (both physical and psychiatric) correlates of marital disharmony."

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