

Lay epidemiology and the rationality of responses to health education

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SUMMARY. *Health education has long been seen as an important component of primary care, and under the new contract has become routine. It is important to consider the likely impact of general practitioners' endeavours in the light of the experience of health education to date. Despite decades of efforts directed towards reducing the population's adherence to practices deemed harmful to health, it must be acknowledged that the impact of such activity has been disappointing. This paper considers some cultural origins of public scepticism to health education messages, and argues for a more balanced presentation of current knowledge concerning the causes of disease and the probability that individuals will benefit by changing their behaviour.*

Introduction

HEALTH education within general practice has considerable potential for improving public health.¹ Under the new contract for general practitioners, health promotion has become a routine activity. Patients do not dislike being given health education,² but as with other aspects of medical advice,³ poor compliance is a major problem. As health promotion is likely to consume an increasing proportion of general practitioners' time, it is important to consider the factors which may obstruct its success.

The key concern has been to discover why patients fail to adopt the practices traditionally advocated by health educators, such as abstaining from smoking, changing diet, increasing exercise, drinking alcohol in moderation, and following 'safer sex' practices. A standard answer is to consider people's beliefs and behaviour as irrational: one recent study describes the fatalistic attitudes held by smokers,⁴ and sees these as a major barrier to health education. Another study presented individuals with a list of statements such as 'if you keep your weight down, the chances of a heart attack are lower' to which patients answered true or false.⁵ Ignorance of health issues in this second study, like fatalism in the previous investigation,⁴ was seen to be a particular characteristic of the lower socioeconomic groups, and was considered to be an important obstacle to health education programmes. But before attributing resistance to health education to irrationality, it is essential to understand the viewpoint of those whose behaviour we may wish to change.

The problem is similar to that of the social anthropologist whose analysis begins with the assumption that, however strange an activity may appear to an outsider, its reasonableness will

emerge from a detailed analysis of the social and cultural context within which it occurs.⁶ The necessity of understanding the context in which health programmes are operating has become a truism in international health circles.^{7,8} A similar perspective may help us understand the continuing acceptance of practices deemed to be unhealthy in the United Kingdom. However, this approach has been used surprisingly infrequently in relation to public health issues in the UK, a failing that we are partially redressing ourselves through ethnographic research. This paper makes use of the results of an ethnographic research study of the popular culture of coronary prevention surveyed in three communities in south Wales.^{9,10}

The lay epidemiology of coronary heart disease

It has been one of our general observations that public perceptions of health risks are the outcome of a process termed 'lay epidemiology'.⁹ This refers to a scheme in which individuals interpret health risks through the routine observation and discussion of cases of illness and death in personal networks and the public arena, as well as from formal and informal evidence arising from other sources, such as television and magazines. People may be aware from personal or shared experience that, for example, excessive levels of alcohol can be injurious to health, or that mining coal can lead to lung complaints. However, where the individual risk is so small or long term that its assessment is beyond the experience of the individual, or where the changes required to reduce the apparent risk have negative social, personal or economic effects, different considerations apply.

Our research has revealed that ideas held by the general public regarding coronary heart disease are more closely associated with the concerns of epidemiologists, than with the partial presentation of risk factors that underpin much health education material. For example hereditary susceptibility to heart disease is considered by the lay population to be one of the most important risk factors.¹⁰ This is an interesting finding since a family history of coronary heart disease is associated with an increased risk,¹¹ and is considered an important factor by epidemiologists, but is rarely discussed in health education material. Similarly the relationship between poor health and adverse social circumstances¹² is widely appreciated by the public, though again this aspect of the epidemiology of the disease has not been given widespread publicity within health education. That popular belief systems are closer in spirit to the questioning traditions of epidemiology than to the certainties of health education has important implications for health education.

When interpreting apparent public indifference to health education programmes advocating the avoidance of risk factors for coronary heart disease it is important to acknowledge the equivocal nature of some of the evidence underlying current programmes. The simple messages concerning individual risk factors are at best only a partial presentation of the epidemiological evidence,^{13,14} and the scientific evidence for the effectiveness of preventive programmes based upon lifestyle modification is inconclusive.¹⁵⁻¹⁷ There are plausible reasons why good evidence may be difficult to obtain, but it is still important to accept that if epidemiologists have difficulty in establishing such relationships using large, long-term studies, then the evidence from everyday experience cannot be expected to offer support to the con-

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cept that lifestyle factors are especially dangerous.

In the main, research^{18,19} reveals that most people are well aware of current opinion regarding risk factors for coronary heart disease. Why, then, does the population not act upon this knowledge with more conviction? The relationship between knowledge and behaviour is complex,^{20,21} and material circumstances obviously restrict people's ability to modify their behaviour.²² However, in this paper the discussion will be limited to the implications of different responses to different sorts of health warnings.

Public perception of health risks

The range of responses to health messages is illustrated by the differing reactions to worries regarding eggs. Reports of salmonella infection in egg yolks in 1988^{23,24} resulted in widespread media attention, and a rapid change in dietary practice; egg consumption fell dramatically. This contrasts markedly with the response to longer standing health warnings concerning the cholesterol content of eggs. In this case, egg consumption per head declined only slightly, despite health promotion campaigns advocating low cholesterol intake, and the existence of considerable public awareness of the association between eggs, cholesterol and heart disease. These different responses to two sets of risks relating to eggs offer clues as to the variation in the impact of health messages. On the one hand we have the suggestion that a component of an otherwise desirable foodstuff may in the long term increase an individual's probability of suffering chronic disease. On the other hand we have the suggestion that the consumption of a particular egg may quickly lead to serious illness. These two types of danger represent the two ends of the spectrum of the public perception of risk.

At one end of the spectrum are acute and easily imagined hazards that can readily be avoided. Such agents are seen as 'poisonous', whether in the sense of food poisoning, or as in possessing other toxic effects (Table 1). Sufferers from diseases caused by poisonous agents can be seen as victims, with legal protection as an appropriate response. Other recent examples that have produced a public response include listeriosis from soft cheeses²⁵ and hyperactivity in children from tartrazine and other food colouring agents.²⁶ Particular cases may not possess all the characteristics we have suggested, for example, the public may respond to the bad/poisonous qualities of apples contaminated with daminozide,²⁷ although the risks of cancer are acknowledged to be small. However, our model would suggest that the response will be less marked than one where the impact of illness is more immediate.

A further element of poisons is that they are seen as agents distinct from the food carrying them. Thus, salmonella infection is not an essential component of egg yolks, and soft cheese does not necessarily contain listeria. As the poison is separate from the food, it can be removed conceptually, and the food returned to its benign state. When an element of the mysterious and unknown is attached, as in the case of bovine spongiform encephalopathy (BSE), the association is less predictable.

At the other end of the spectrum of public perception of harm are those 'bad/desirable' activities such as smoking and drinking and eating rich foods, which although perceived as being bad in some respects are desirable in others (Table 1). Here the risks are less immediate and less specific. While the hazards may be acknowledged by individuals, they are counterbalanced by explicit benefits. These practices often relate in some way to the core values within a culture.

This taxonomy is, however, over simplified in that these categories are constantly shifting in response to a variety of influences. One finding of our field research is that a number of bad/desirable behaviours are perceived by some individuals to belong to the bad/poisonous category. The epidemiological

Table 1. Characteristics of the types of risk behaviour.

Characteristics	Behaviour	
	Bad/desirable	Bad/poisonous
Impact of illness	Distant	Proximate
Duration of illness	Chronic	Acute
Nature of illness	Varied	Specific
Interpretation of illness	Moral	Medical
Hazards balanced by benefits	Yes	No
Source of exposure	Self-imposed	Imposed by others
View of sufferer	Fool	Victim

evidence does not support the view that any consumption of animal fat is hazardous, but it is not uncommon for people to talk as if it were, for example, bread and dripping, once a common form of food, is often referred to as 'disgusting'. White sugar is similarly recategorized by the symbolic use of artificial sweeteners in tea or coffee after a meal containing considerable quantities of hidden sucrose. This sort of gradual change in the public perception where behaviour shifts from the bad/desirable category towards the bad/poisonous category has been utilized in one area of health education. The process appears to have been carried out successfully for tobacco smoking in some social settings. The acknowledgement of the risks of passive smoking as well as litigation against tobacco companies in cases of tobacco-related disease offer further evidence of this shift in public perceptions. The same process is now being extended to various dietary items and alcohol.

This is, however a dynamic area of social life, influenced by factors other than health education. Some advertising campaigns have made an explicit attempt to maintain or increase the acceptability of products by shifting public perception of items back towards bad/desirable from bad/poisonous. The campaigns advertising cream as 'naughty but nice' and welcoming people back to butter, the implied desirable lifestyle that characterizes much tobacco advertising, and the choice of targets for sponsorship by tobacco companies, are obvious examples. Paradoxically, government mass media campaigns on health issues can shift public perceptions in the opposite direction to that which is desired. For example, concern has been expressed that campaigns against heroin can exacerbate use among some populations as the views of the purveyors of the official message on the desirability of a particular physical appearance differ from those of the intended recipients.²⁸

A sceptical public works to keep favoured activities away from the bad/poisonous end of the spectrum. This process often occurs through the medium of jokes or idioms that neutralize any threat to pleasurable pastimes. Thus the question 'What's your poison?' when asked in a social context of generosity and conviviality helps to render laughable the idea that alcohol may truly be injurious to health (Figure 1).

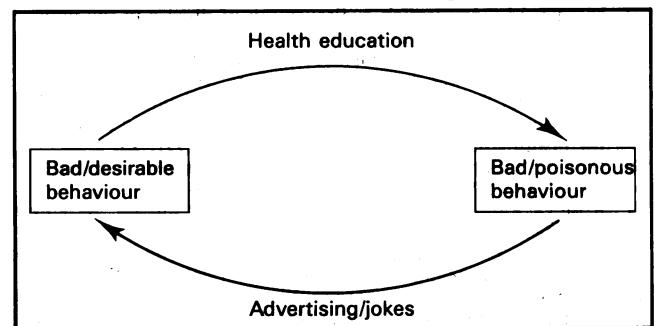


Figure 1. The influence of health education, and of advertising and jokes, in shifting public perception of health risks.

Implications for health education

It may be tempting for health education to try to accelerate the process of health education and behaviour modification by exaggerating the poisonous nature of certain risk factors. However, these risk factors do not possess all of the characteristics of the bad/poisonous model. Our research has identified a strong element of public scepticism in relation to the health education messages that are offered.^{9,10} This scepticism in some respects echoes the doubts of many epidemiologists about the quality of the scientific evidence concerning both the nature of risk factors and the benefits to individuals of changed behaviour, in for example, coronary heart disease.

If health education is misleading about something whose status as a risk factor is constantly changing, the end result is likely to be counter to the aims. This process has occurred with advice regarding coronary heart disease prevention and there is public delight when the experts are seen to have 'got it wrong', as reactions to a report that low cholesterol levels are related to cancer showed.²⁹ A similar scenario regarding salt and high blood pressure was played out a few years earlier.³⁰ The most recent example is the flurry of media interest in the provisional finding that men who eat butter have no greater risk of coronary heart disease than those who eat polyunsaturated margarine, and that whole milk may actually be protective against coronary heart disease.³¹ The result is an understandable public dismissal of current guidelines and a widespread acknowledgement that 'if you listened to everything they said, you wouldn't eat anything'.

Conclusion

It may be preferable for health educators to present the public with a balanced representation of current knowledge, and ignorance, of risks to health. The general population's perception of these issues is considerably more sophisticated than is generally appreciated by health educators. Inappropriate messages can only erode the public's trust in the credibility of health education in the longer term. Such messages may encourage scepticism towards even the best founded health education messages, such as those concerning smoking.

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