

## Original Article

# Nutrition communication: Do we need a new outlook?

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The present paper will discuss the nature of nutrition communication and knowledge in relation to novel foods. The paper starts with an introduction to trends in present-day society, then focuses on the concepts of knowledge and information in relation to human needs and motivation. Next, the relevance of food and nutrition communication to consumer lifestyles is discussed. This is followed by consideration of consumer issues related to novel foods. The key conclusions are that nutrition communication is a minor part of most consumers' lifestyles and that the promotion of novel foods must be based on the dissemination of sound nutrition principles throughout the various values and lifestyles segments of the population.

**Key words:** consumers, novel foods, nutrition communication, trends.

### Society today

Novel foods are being introduced into rapidly changing social milieux that have been variously labelled by sociologists and others as post-modern or post-structural society.<sup>1</sup> In this new society there is no longer any single source of authority or of Truth. Pop stars vie with scientists, politicians and religious leaders to tell people how they ought to live; and in the nutrition domain, orthodox nutritionists are outnumbered by a variety of alternative practitioners who have a lot to say about the health effects of foods. Even government departments that in the past were relied on to be sources of authoritative information about food have been privatized or shown to be overly influenced by lobby groups. There is an atmosphere of cultural relativism that pervades much of public and private life which suggests that anyone's opinion on anything is as good as anyone else's.

This means that the interested consumer is bombarded with information and misinformation about food and nutrition from all sorts of sources, and most consumers have little knowledge to be able to judge the veracity other than the images of the various sources. This inability to judge the truthfulness of sources of food information may in part be due to the fact that most of us now live urban lives, far removed from nature and the agricultural existences of our forebears for whom food production was a daily chore or experience. Much of our information today is brought to us by the mass media, especially by the distorting lens of television,<sup>2,3</sup> which can go where we cannot so that we end up with quick sound bites of tele-information which we decode to the extent that we have sound understandings of basic concepts (e.g. of food and nutrition).

Most of us are much more passive about food than our ancestors. How many of us, for example, have collected chicken eggs, milked a cow, picked fruit from trees or gutted a fish? Novel foods are being introduced into this very

uncertain world in which most things have to be taken on trust. Such trust depends on various types of knowledge and information.

### Knowledge and information

Before considering the issues that consumers face with regard to novel foods, it is worth examining what we mean by knowledge and information because they lie at the heart of nutrition communication. Quite simply, in classical engineering definitions, information is that which reduces uncertainty.<sup>4</sup> Information itself may convey meaning or may not depending on the prior knowledge of the receiver, for example the human genome project has produced a great deal of information that is quite meaningless for most people with the exception of interested molecular biologists. Most consumers cannot understand what all the fuss is about because we do not know much about the context in which the information is produced.

Knowledge differs from information in that it is contextual and is organized as a system of validated or validatable beliefs. The associative model of human memory<sup>5</sup> often compares a person's knowledge to a fishing net draped over a beached boat: there are knots (pieces of information), which are linked by strings (concepts or schemas). The aim of nutrition education is to help organize people's nutrition information into organized systems of knowledge that can assimilate new pieces or information ('facts') and reject information that is inconsistent with these schema on the grounds that they are likely to be false.<sup>6</sup> The interesting thing

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about beliefs is that they can be held strongly or less strongly and they can be subject to change through psychological processes such as cognitive dissonance reduction.<sup>7</sup>

Information and knowledge are stored in long-term memory as associative networks of concept nodes and relationships.<sup>5</sup> Psychologists often talk about 'schema', which are interrelated sets of beliefs organized along some overarching theme,<sup>8</sup> such as the green nature of many vegetables. Some knowledge matters more to some people than others so they may work hard to develop quite elaborated schemas. For example, people that have experienced misadventures with household bleaches often have a well developed tree-like schema linked to perceptions of the safety of various substances.<sup>9</sup> Knowledge is rarely passively absorbed by people; instead it has to be actively created by the thinker through his or her personal experiences, hence the emphasis on 'discovery' or 'experiential' learning by many educationalists.<sup>10</sup> This often occurs most readily in small groups because humans pay a lot of attention to the doings of other humans.

### **What are humans about? Motivation**

Why should consumers learn anything about food or nutrition? Why should nutrition communication work? Learning occurs in part because it meets human needs. These universal needs include biogenic needs such as thirst and hunger, but also 'psychogenic' needs such as the innate need of humans for social recognition, for intimacy, for control over their immediate environment and for cognitive consistency.<sup>11</sup> Food can be used to satisfy all of these psychogenic needs at various times during the lifespan; for example, the serving of special foods at birthday parties can mark the transition of a child into an adult (e.g. 21st birthday cake) or it may make the point that the host is a high prestige person (e.g. servings of caviar).

Of course needs can be met in many ways. Marketers define wants as the ways in which consumers meet their needs: so a person may feel thirsty but could satisfy this need by drinking any number of beverages from water and milk to coke and beer. Today's food market is full of branded food products that meet consumers wants; they all offer some benefits to the customer. Novel foods or functional foods merely promise additional 'health' benefits to the consumer, so not only can foods satisfy your hunger or give you some prestige in the eyes of your family but they can now prevent specific diseases (or so it is claimed).

How do we select from all the needs and wants that we experience? We have so many that we might be quite paralyzed if we didn't have some ways to prioritize our actions. Simply said, some things are worth more to us than others. Personal values (deep-seated beliefs about what we think is right) guide many of our actions; indeed they are the guiding principles for many of our purposive behaviours.<sup>12</sup> Schwartz and Bilsky have identified quite complex taxonomies of human values that seem to exist in all large-scale human societies.<sup>13</sup> For example, some people are motivated by social power over others, while other people may be more

interested in harmony with nature or sensation seeking. These preferred values appear to influence the foods we choose to buy and consume. For example, people with strong harmony and egalitarian values tend to be vegetarian while those with strong tradition value prefer meat.<sup>14</sup> Values allow us to judge nutrition and food information and knowledge. If we are interested in health, for example, we are likely to seek out foods that can deliver a health benefit (e.g. phytosterol margarine).

### **Properties of knowledge**

Knowledge of any type has properties for the individual as well as for the population. Some of its individually relevant properties include its ability to make sense of the world and to predict the consequences of our actions (e.g. if we eat puffer fish we will probably become violently ill). Knowledge is also important for our emotional and material well-being, so we know who cares for us and who we can rely on as well as where we can go if we need material resources such as money or medical treatment. Somewhat more interestingly, knowledge can have long latency or sleeper effects. For example, things we learn at school about infant feeding may be of no use to us until years later when we have our own children. It is difficult to predict just what humans will do with any given set of knowledge; for example, knowledge of sources of dietary fibre could be used to prevent constipation and bowel cancer in humans or to feed the pet dog! Knowledge is very flexible stuff!

From the point of view of population nutrition, knowledge has several very important characteristics. First it defines 'common sense'; that is, parents should know where food comes from and what sorts of food help infants to grow and thrive. Parents should know that girls put on fat around the hips as they approach puberty; they should know that they do not need to 'go on a diet'. Parents should know that they have to choose the foods their infants eat and not vice versa. Unfortunately, in today's society this 'common sense' may not be distributed evenly. Second, knowledge generates behavioural possibilities. The widespread belief that 'fat is bad' promulgated in part by heart foundations and the fashion media, generates slimming behaviours, dieting, low-fat food sales and anti-obesity gene treatment research. Third, knowledge may not be sufficient to bring about changes in food consumption habits but it may be a necessary factor in such change. Thus people with sound nutrition knowledge are many times more likely to consume large amounts of fruit and vegetables than those without this knowledge.<sup>15</sup> Obviously motivational factors are also important but without basic knowledge, innovations in behaviour are unlikely. Novel foods are the result of new nutritional knowledge as well as the needs of food companies to make profits but they may take a while to become established until consumers also share and value this knowledge. Finally, most people's knowledge is highly interrelated; unlike that of specialists in academic disciplines, lay people's knowledge tends to be fuzzy and overlapping. So for many consumers, knowledge of the fat

content of foods may be closely related to knowledge of soap operas and fashion magazines. It is difficult to divide lay knowledge into separate domains in the manner of scientific disciplines.

### Food and nutrition information

So where does communication about food and nutrition fit with people's other knowledge and how does it fit with their lifestyles? Let us look at a traditional example of the application of nutrition knowledge: that of feeding infants. It is clear that information, say about fruit or vegetables, fits in with much broader schema such as beliefs about the properties of being parent or a child. The notion of parenthood implies that that person has the authority to feed vegetables to their child if they see fit. The parent needs to know that young infants require a great deal of food energy in order to grow; they have to have some idea of what constitutes normal body growth so that they can interpret nutrition communications in ways that foster the child's growth and well-being. Above all they require high self-confidence and self-efficacy,<sup>16</sup> truly believing that they can look after their child well and that their parenting behaviours are correct. If they do not have these beliefs about themselves they will be fairly powerless to assimilate any nutrition messages because nutrition may be seen as something they cannot influence. So nutrition communication has to be consistent with prior information and beliefs that the receiver (the parent in this example) already possesses.

Another example of the influence of existing schema on the receipt of nutrition information or communication can be seen among those who hold strong egalitarian value systems who become vegetarian. These people believe that animals have rights rather than humans do. They also tend to believe that men and women should be absolutely equal and indeed that parent and children are more or less equal; that is, they live in a non-hierarchical world in which the self is the main source of authority.<sup>17</sup> This world view tends to be associated with low intakes of meat (which is viewed as 'bad' in ethical and health terms) and high intakes of plant foods.<sup>18</sup> Thus messages about the nutritional benefits of meat are likely to be met with opposition or denial.

Yet another example of the basic ideology that is likely to influence reception of nutrition messages or the adoption of novel foods concerns the 'cult of appearance' or the 'tyranny of slenderness'.<sup>19</sup> People who ascribe to this view believe that physical appearance is most important, that men and women should be slim and that skin care is a primary part of life. This system of beliefs is associated with the use of slimming diets, low-fat foods<sup>18</sup> and beauty products. It is likely that people who hold these beliefs will be eager recipients of any messages about novel foods that promise to fulfil their quest for 'beauty and slimness'.

These three examples of different belief systems that exist in the population show that food consumption and nutrition communication are likely to be received and acted on in different ways by different segments of the consuming population. Thus purveyors of novel foods need to conduct

thorough market research to identify people who want the benefits offered by their products. We cannot regard all consumers as being the same; they differ according to their world views and their prior beliefs. So which nutrition knowledge are people interested in? Is it the variety of foods offered (as stated in the various sets of dietary guidelines), or is it related to disease prevention: the virtue of fruit and vegetables in the prevention of bowel cancer or of low-saturated-fat diets in the prevention of heart disease?

Parmenter *et al.* have offered evidence that most people in affluent societies such as Britain know about the benefits associated with polyunsaturated fatty acids (PUFA), but only the more highly educated know about the role of fruit and vegetables in the prevention of some cancers.<sup>15</sup> These are both forms of declarative knowledge (about what is). There is increasing evidence that what is in short supply in the population is 'procedural knowledge': knowledge about how to do things. People may know about the benefits and drawbacks of various types of food but they don't know how to buy or prepare various kinds of foods. For example, most people know green vegetables are good for you but they don't know how to get their children to like them!

We need more nutrition communication that helps develop people's procedural knowledge. Food labels in particular could be very useful ways to help people purchase products that suit their health goals (e.g. to eat low-fat foods). Alas, our schools, which are supposed to be places that equip people for life in the adult world, have many problems in providing procedural food knowledge for children and especially for adolescents. More practical life skills education is needed: for example, ways to schedule the events in personal and family life so that quality food is consumed, how to shop well, and how to prepare convenient but healthy and appealing meals. Such life skills communication may need to be tailored to consumers' different values and lifestyles,<sup>20</sup> and should be planned to take advantage of transition periods in people's lives. Before, during and after these periods (such as after the birth of the first child, or after leaving high school, or after a bout of life-threatening illness), communication is likely to be seen as relevant by the person in transition so long as the message is about ways in which they can cope with change.

### Consumers' food concerns

It is worth emphasizing that people have many more interests in food than those offered by nutritional specialists. Our work on consumers' food concerns suggest that concerns centre on the self and the immediate family but also on the welfare of others.<sup>21,22</sup> People are most concerned about the safety of food, and about the chemical or microbiological contamination of food. They expect governments to police food safety regulations and to oversee the honesty of food labels. But they are also concerned about the care of children (opposing food advertising to children), the food security of the poor here and abroad, the welfare of animals used in food production, and the sustainability and environmental safety of food production, among other issues. Again, different

groups of people place different emphases on these issues, partly depending on their personal values, forming substantial blocks of public opinion.

### **Relevance of nutrition communication**

So what are consumers looking for in food? This depends on the kinds of activities that they are performing. During food purchasing people want to know how to recognize quality, how to choose 'low-fat' products, how to judge value for money (e.g.  $\times$  g nutrient  $\times$  per \$) compared across products, and how to choose a 'healthy' food. When feeding children, parents want to know about the sorts of foods that will keep their children healthy (and which will not harm them), as well as strategies to deal with 'fussy eating' or food refusal. If they are concerned about their physical appearance they will probably be interested in ways to prevent or treat wrinkles, or ways to stay or become slim. Whether nutritionists should attempt to meet these demands is a matter for debate. On a related topic, as they and their parents become older they will be interested in information about ways to remain disability- and disease-free and, in particular, ways in which foods can help maintain their cognitive capacities and prevent negative mood states such as depression. If consumers want to protect the environment they probably want information about the fossil fuel energy used in producing and transporting the food product or in other ways they may help protect the planet. These are relatively new benefits that foods may offer the consumer but the mainstays of foods in satiation, enjoyment, social conviviality and providing social prestige should not be underestimated.

### **Novel food issues**

Several consumer issues are likely to arise with the introduction of foods that have been specially designed to deal in some way with a health problem. Each requires consideration. These issues include the following.

#### ***Cultural appropriateness***

In many traditional cultures such as Okinawa and Indonesia, foods are believed by most of the population to have healing powers. However, in other cultures such as those of western Europe such beliefs are weaker. Therefore the introduction of functional foods blurs the sharp division between natural and synthetic foods and between food and medicines. It might be expected then that more traditional segments in the population will reject such innovations.

#### ***Complexity and source credibility***

In cultures that are unused to special health-promoting foods the introduction of novel foods is likely to confuse the population and may compete with more traditional taxonomies of foods expressed in dietary guides. Consumers may be unable to judge the efficacy of claims made about novel foods and may over-rely on them or reject them. In such circumstances the credibility and trustworthiness of the source that communicates information about the novel foods

is a crucial factor. In some countries this source may be an impartial government authority but in others it may be health professionals or food companies or some combination of both. Source credibility is likely to be reduced whenever the source of information is recognized as having vested interests to promote the product. Part of the opposition to Monsanto's foray into genetic engineering was based on the belief that the company did not provide impartial information about the downside of their product, leaving consumers with unknown hazards.

#### ***Complex labels***

In markets in which many novel foods are launched, each promising different benefits, there will be a temptation to provide consumers with information relating to the supposed benefits. One of the conventional ways to do this is to put the information onto the food product label. This will magnify the problems associated with the use of food labels, one of which is the problem of transformation. Ideally, consumers want information in the form of value judgements, for example, 'This will do you good'. Usually scientific authorities are unwilling to give such black and white information, often hedging their bets with probability-like statements (e.g. 'X gm of this product may reduce your risk of heart disease given other conditions.'). This requires consumers to do hard cognitive work, which many are unwilling to do, so the message is ignored.

#### ***Outrage factors***

In circumstances when the manufacturing process is unfamiliar or when the effects of the product are novel, there is a risk that consumers may be vulnerable to vivid depictions of the possible negative consequences of the product's use. For example, genetically modified foods such as long lasting tomatoes were initially well accepted by UK consumers because of their great taste, but when some environmentalist groups raised the possible consequences of genetic pollution ('Frankenstein foods') consumers deserted these products and the supermarket chain that supplied them in mass panic. Lack of familiarity, lack of personal control over identification of ingredients, the perceived domination of big business and dread can combine to cause widespread outrage. This is likely to be a risk that all novel products of applied technology will run. The psychology of communication of risk, hazard and outrage has been examined by investigators such as Slovic<sup>23</sup> and Sandman.<sup>24</sup>

#### ***Disease shopping***

Novel foods developed for health purposes may encourage 'disease shopping' and the nutrient equivalent of 'calorie counting' among some vulnerable groups in the community (such as the chronically ill and the elderly). This over-emphasis on disease reduction may run counter to the social use of food consumption as a key form of social conviviality. This raises the question as whether consumers have the cognitive skills and prior knowledge to use novel foods for their overall benefit.

**Conscious or non-conscious usage?**

It is quite possible that novel foods could be produced to overcome several nutritional problems such as micronutrient deficiencies among the elderly. We often assume that these foods would be used as a result of conscious decisions by consumers. Certainly such voluntary decisions would reduce the likelihood of outrage and panic. However, foods are already fortified without the knowledge of most of the population (e.g. thiamine is added to bread in Australia.) Would other novel foods or food ingredients be distributed in similar ways? Perhaps wider coverage of vulnerable groups might be achieved. Would this be seen as compulsory medication of the community or simply as a way of reducing nutritional deficits?

**Conclusions**

Nutrition information can be decoded only via appropriate schema. Therefore, nutrition education is important. Nutrition knowledge is only one aspect of consumers' knowledge about food, people and the world. Not all consumers are the same. Societies contain many groups and categories of food consumers who hold different belief systems and lifestyles that will affect their readiness to consume novel foods. Different novel foods are likely to emerge for different consumer segments.

Disease prevention is only a minor part of most people's lives; so novel foods will be used only by the disease conscious, and dissemination of key nutritional schema and food purchasing and consumption skills will be vital for the success of novel foods.

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