Number: 81  Consumer attitudes to food safety information on food labels
Consumer attitudes to food safety information on food labels

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ABSTRACT

Food safety information is provided to consumers via numerous sources including food labels. Nevertheless, food-borne illnesses remain a widespread health issue, with many cases caused by poor practice in the domestic kitchen. This work explored consumers’ awareness, understanding and use of food safety messages on food labels using Q methodology in the UK and Spain. The study reveals a wide variation in attitudes towards the use of food safety information on food labels. Some participants are concerned about the risk of food poisoning and carefully follow use-by dates. Others believe use-by dates are overcautious and pay them little attention, relying instead on their own judgement. Important underlying issues were revealed: trust in the regulatory system, concern about production methods and long-term health issues relating to food, attitudes to risk, and confidence in personal experience or judgement.

KEY WORDS: Food labels; food safety; consumers; attitudes; Q methodology

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Introduction

A complex set of legislation and standards has been developed to improve safety throughout the food chain, inform consumers and facilitate trade (Cheftel, 2005). Food safety legislation includes regulations about food labels, which comprise perhaps the most critical channel available for directly communicating food safety issues to consumers. Of specific interest here is information such as display until, sell by and use by messages, which have implications for food safety. In addition, food labels contain information about storage, preparation and cooking, which have further importance to food safety. However, food labelling has become increasingly complex, combining regulatory requirements with marketing information in ways that sometimes become confusing and bewildering for time-stressed consumers.

Consumers’ knowledge and use of food labels

Overall, there is relatively little research available on how consumers use food labels (Abbot, 1997; Capps, 1992). Thus, knowledge regarding consumer use and understanding of safety information on food labels is sparse. This knowledge is likely to be found in articles that deal primarily with consumer use of other aspects of information on food labels (e.g. Pieniak, Verbeke, Scholderer, Brunsø & Olsen, 2007; Verbeke & Ward, 2006; Bernués, Olaizola, & Corcoran, 2003), such as country of origin, ingredients, or quality assurance scheme symbols (e.g. Gellynck, Verbeke, & Vermeire, 2006).

What information is used?

Research has shown that consumers do look at food labels. For example, as product characteristics like chemical and microbiological content are not directly observable, food labels are used by consumers to infer food quality and safety (Grunert, 2002; Rohr, Luddecke, Drusch, Muller & Alvensleven, 2005). According to a UK Food Standards Agency (FSA) report (2006), food labels are considered useful, especially mandatory information, but intensity of use depends on consumers’ attitudes. For example, cooking and storage instructions were considered to be unnecessary by consumers who claim to have food handling knowledge, and who are confident in their own skills and understanding of food safety issues. However, expiry dates and cooking and storage instructions have been found to be among the most important information on food labels (OPTEM, 2005). Further, 89%
of consumers claim to look at information on labels including origin, brand, price, cooking and storage instructions, and expiry dates (TNS, 2004). However, consumers claim to look at certain label information when buying the product for the first time, but pay less attention when repeating the purchase (OPTEM, 2005).

As noted above, country of origin is one aspect of label information that may be observed by some consumers. Interestingly, product origin is associated with quality and safety (OPTEM, 2005; Cowan, 1998). Food scares and negative perceptions of production methods that may affect the perceived ‘purity’ of products (for example, use of hormones and antibiotics in livestock) affect peoples’ attitudes towards origin (in this case, of meat). Similarly, consumers with concerns about food additives, the use of pesticides and animal medicines may look for organic certification symbols and ingredient lists as clues to potential food safety (GFK Social Research, 2009).

Thus, studies have reported variable use of food safety information on food labels but a number of issues are important, namely: whether the consumer is buying a familiar product or a new product; what type of product is being purchased; and attitudes towards other related issues such as production methods and self-confidence in food handling.

**Use of use-by dates**

A UK study (GFK Social Research, 2009) exploring attitudes towards food, showed that some consumers, especially elderly people, take risks by consuming food past its date of minimum durability. Forty nine percent of respondents identified ‘use by’ date as the best indicator of product safety, implying that half did not. The report also suggests that some consumers do not know the difference between ‘use by’ and ‘best before’ dates. Some consumers were found to be using expiry dates as guidelines, but relying on their judgement to decide if food was safe. The most common method for deciding whether food was safe was by smelling (74%) or looking at the product (65%). Other studies have confirmed that expiry dates are often checked, especially for perishable products like meat, poultry, fish and dairy, but that the consumption decision is reinforced by the smell and appearance of the product (OPTEM 2005; Terpstra, Steenbeckers, de Maertaelere, & Nijhuis, 2005). This is a
relevant issue because food poisoning can be caused by Listeria, for example, which cannot be detected by product odour or appearance.

There seems to be a link between use of expiry dates and product type: consumers use labels mostly when buying foodstuffs where knowledge of expiry date is essential (for example, milk, meat, fresh produce, etc.) (OCTA, 2006). Research has found that, at least for meat products, consumers associate ‘expiry dates’ with freshness, which is seen to be a cue of both quality and safety (Bernues et al., 2003). Even then, some consumers do not follow dates as they do not believe that major health risks are present even after expiry dates.

**Use of storage, preparation, and cooking information on labels**

Regarding information relating to storage conditions and preparation guidelines, although consumers consider it a fundamental aspect of food labelling, it is often used only when consumers buy a new product (especially pre-prepared dishes) and not when it is a product purchased previously (OCTA, 2006). Studies indicate that storage information is not regularly consulted, as consumers are guided by the location of products in the shop (OCTA, 2006). Moreover, preparation and cooking instructions are rarely consulted (OCTA, 2006). Evidence suggests therefore, that current instructions provided for storage conditions, and preparation and cooking guidelines are unsatisfactory (TEEC, 2003). Even where storage, preparation and cooking information has been found to be adequate, consumers would like to see more details about product appearance and condition when it is unfit to consume, and more details about how long a product can be used after opening (OCTA, 2006).

**Key points**

Overall, literature suggests that labels are one of the most used and trusted food information sources for European consumers (de Almeida et al, 1997) who in general have positive attitudes towards them (Pleniak et al., 2007). However, there are those who suggest that consumers do not use effectively, and do not completely understand, the information on labels (Capps, 1992). Further, consumers are sometimes overwhelmed by label information and this can lead to indifference or misunderstanding (Salaün & Flores, 2001). Nevertheless, the literature is unequivocal as regards the high levels of
consumer interest in safety guarantees (e.g. Pieniak et al., 2007) and the fact that expiry dates are often among the most demanded and used information on food labels (Pieniak et al., 2007; Gellynck et al., 2006; Bernues et al., 2003).

This research explored the extent to which consumers are aware of, understand, and utilise food safety messages on food labels. To this end, a two country study was undertaken. This is reported in the following sections.

Method
This study was conducted in 2009 in the UK and Spain, using Q-methodology. The methodology explores how individuals with common views understand an issue (Barry & Proops, 2000) (for more on Q methodology see Addams & Proops, 2000; McKeown & Thomas, 1988; Brown, 1980). Q-methodology has been used to explore peoples’ attitudes across social science disciplines, addressing diverse topics (see for example, Barry & Proops 2000; Zografos 2007; Ellis, Barry, & Robinson, 2007; Hall, 2008). Its prior use in the field of food safety issues is limited.

Q methodology is implemented in five stages. First, a pool of statements concerning the issue is generated (the concourse). Second, statements are reduced to a smaller set to which participants are asked to respond (the Q set). Third, participants ‘sort’ the statements against a scale of ‘mostly agree’ to ‘mostly disagree’ (or similar categories) using a template forcing responses into a quasi-normal distribution, in order to facilitate comparison between individual ‘Q sorts’. Fourth, statistical analysis of the ‘Q sorts’ is performed (based on Principal Components Analysis and using an inverted factor matrix), to discern discourses among respondents. Finally, results are interpreted, to outline discourse characteristics by specifying issues that each discourse mostly supports and rejects, and by highlighting issues that differentiate each discourse from the others.

In the UK the concourse was generated through interviews outside supermarkets and via email, and in Spain through face to face interviews. In the UK 400, and in Spain 128, statements were collected using the same open-ended questions in both countries. Q-sets were obtained through a systematic,
iterative procedure using a matrix for distributing and selecting statements, an approach commonly used in Q-methodology. Matrices are designed according to study characteristics so are study-specific (see Barry & Proops, 2000; Baker, 2006; Zografos, 2007). The Q-set in both countries consisted of 36 statements (Q-sets were different for the two countries). Q sorting needs only a limited number of participants, essentially requiring enough subjects to establish the existence of a factor for purposes of comparing factors to each other (van Exel & de Graaf, 2005). In the UK, 12 Q-sorts were conducted; in Spain, 20 were completed.

**Results**

Data (the Q sorts) were analysed using PQMethod software (Schmolck, 2002). Three factor groups were revealed in both countries. However, in the UK, group two included both positively and negatively loaded sorts. This is called a bipolar factor, and means that the UK results reveal four discourses. In Q methodology the views of each factor group are represented by an idealised Q sort and can be analysed by studying a factor array showing how each factor scores each statement using the Q sorting scale (Tables 1 and 2). In this section the interpretation of the factors is described based on certain important statements. These are the *most agreed* and *most disagreed* statements within a factor (statements scored +3, +4, -3 and -4). Also important are *distinguishing* statements, which are statistically significant at differentiating one factor from the others. The results are complemented by qualitative information from after-sort interviews and should be read in conjunction with tables 1 and 2.

**UK**

**Factor 1: Concerned about ingredients**

Consumers in this factor think that food labels are relevant for decision making, mostly during purchase (not when handling products at home). These consumers make intensive use of food labels (strong disagreement with statement 10), but mainly look for information related to ingredients and nutritional content (statements 15, 18, 19 and 20). Interview comments reveal concern about food risks associated with longer-term health issues that might be caused by additives and chemical content. In this context, this view prioritises products with fewer ingredients and tries to avoid processed foods:
“I am careful about food colourants and artificial content. They may have an impact on your health in the long term” (participant 6).

If possible, consumers in this factor prefer preparing their own meals, using fresh ingredients and what they think are natural products, in order to have some control over the selection of meal ingredients:

“Statement 19 is probably the most important because I like the idea of food being quite simple, using fresh ingredients. I don’t like buying products with a lot of ingredients. I like the idea of almost creating the finished product” (participant 6).

The discourse prioritises natural and fresh food but these attributes are not considered to be proof of safety (statement 5). Consumers relate food safety to product origin, because they consider that some countries have production methods that affect product safety. This is especially relevant for meat products when issues such as hormone use and animal breeding are important. As a consequence, information on labels about country of origin is valued (statement 21, +3 and distinguishing).

“Origin information is important. There are some countries I won’t trust as much as others. Maybe Dutch or Danish meat I won’t be very happy to eat, because they have different ways to grow animals” (participant 5).

Strong agreement with statement 11 reveals a lack of trust in manufacturers and the information they put on food labels. This view considers that food producers can and do manipulate information provided to consumers, an issue clearly stated by participant 3:

“They (manufacturers) tell you as much as they want to” (participant 3).
In addition, although believing that standards and regulation provide a certain level of food safety, consumers represented by this factor group are aware that some safety procedures may fail somewhere along the foodchain (statement 6).

Information to prevent food poisoning, like storage instructions and expiry dates, while checked, is basically used as a guide because consumers are confident in their food handling skills. In particular, storage instructions are not considered to be useful (statement 32 (4) and statement 30 (2)), providing redundant information that can be substituted by common sense:

“Storage instructions are obvious stuff. Hopefully you get the knowledge when you are young” (participant 6).

**Factor 2: Bipolar factor**

As mentioned, factor two is a bipolar factor and thus contains consumers with opposite views. These two views are discussed independently, and are labelled 2A and 2B. Factor 2A represents the views of those consumers who loaded positively on factor two, and their opinions are expressed by the factor array (table 1). Factor 2B represents the views of consumers who loaded negatively and their opinions are the opposite of 2A.

**Factor 2A: Safety information is for others**

Consumers in factor 2A do not use food labels intensively and have strong negative views about the usefulness of label information. Labels are not considered helpful for improving food safety while buying, handling or cooking products (statements 29, 22, 32, 28, 16 and 8). This issue can also be identified in the opinion of participant 9:

“I don’t think labels are going to make me decide if food is safe or not. It may be the appearance or the brand…labels may contribute, but it is (sic) not the main rule” (participant 9).
Similarly to factor one, factor 2A consumers are characterised by their concerns about how food is produced and its ingredients (statement 18). If they do check food labels, they look at the ingredient list, preferring products with low levels of artificial content and additives. Products with labels displaying certified organic production methods are believed to be safer (statement 7).

“I do buy a lot of organic food, so I look at certifications. This food is safer because it has less pesticides and not GM content. It is a long term health issue that I am concerned about” (participant 9).

People in this factor do not find labels useful (statements 10, 16), but accept that other people might do. This is probably because factor 2A consumers trust strongly in their own knowledge and judgement of food-related issues. For them, food safety is a matter of experience, not something that a label can provide:

“I don’t get food poisoning, so I think it is mostly common sense how to treat certain foods. I think I have a pretty good judgement about food…..but some people may find them (dates and instructions on labels) useful” (participant 9).

This view prioritises quality over safety (statement 2), and assumes that quality products are safe:

“If you buy quality food, safety is implied….I expect a safer product from more expensive quality foods” (participant 9).

Although information like expiry dates, storage and cooking instructions is read, it is believed to be redundant and is often ignored (statements 29, 22, 32, 28, and 8). Decisions are mostly based on consumer’s own judgement:

“I frequently use products beyond the “use by date”, provided that they smell and look okay. And I never had food poisoning” (participant 12).
Nevertheless, those associated with this factor group do acknowledge that best before and use by dates are important (statement 23).

**Factor 2B: Concerned about safety: in labels we trust**

Factor 2B represents the opposite position of factor 2A. Consumers make intensive use of food labels and consider that labels are very relevant for food safety (statement 16). Moreover, food safety is a priority when choosing and handling a product (statement 2).

In contrast to factor 2A, factor 2B consumers take into consideration storage and cooking instructions (statements 32, 28). There is awareness that some information on labels plays a role in terms of safety and support for food handling. Consumers are also concerned about the possibility of consuming a product that has gone off. Consumers are aware that they do not have total control of the safety of food products. In this context, expiry dates are expected to be on labels and will probably be obeyed (statement 22). An additional difference between the views of consumers in factor 2A and factor 2B is their concern about ingredients. Consumers in factor 2B are less worried about ingredients and artificial content (statement 18).

“I don’t care much about what’s in a product” (participant 10).

In summary, factor group 2B is defined by a high degree of concern about food safety, a strong reliance on, and use of, food safety information on labels, including use-by dates, cooking and storage information.

**Factor 3: Moderate users of labels**

Consumers in factor 3 are moderate users of food labels. Distinguishing statements 7 and 18 reveal that, in contrast to factors 1 and 2A, there are no strong concerns about production methods or ingredients. In fact, being concerned about ingredients and production methods is not considered to help food safety (statements 7 and 12):
“I don’t worry too much about ingredients or artificial content. I think there is no imminent risk in food content” (participant 7).

Consumers are aware of the risks of food poisoning (distinguishing statements 3 and 6), and that these risky events can be avoided with proper handling of food products. However, some information on food labels, as with factors 1 and 2A, is used mainly as a guide (statement 36). Consumers in this factor also rely on their own knowledge and intuition (statement 29).

“I make my own judgements about my food, however I think information on labels is useful to make these judgements” (participant 2).

An awareness of short-term risks is linked to the view that the existence of production standards and regulations does not guarantee safety (statement 6). This does not imply distrust in institutions, but an awareness that procedures may fail.

“There is always a risk. Products not properly washed, failed controls…” (participant 7).

Importantly, sell by and display until dates are seen as being synonymous with freshness and long-life potential (statement 35). These dates are used as a guide for choosing a fresher product or a product that can be kept for longer. Confidence in their own decisions is shown by the fact that they may check expiry dates, but not always obey them (statement 36):

“Dates are a good guide, but I think they are overcautious” (Participant 2).

Among the safety information provided on food labels, the least valued by factor 3 are storage instructions (statements 32, 29).
<table>
<thead>
<tr>
<th>Statement</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I don’t think much about food risks</td>
<td>-2 1 -1</td>
</tr>
<tr>
<td>2. I am more concerned about the quality of food than the safety of food.</td>
<td>-1 3* 1</td>
</tr>
<tr>
<td>3. When buying or cooking a product I am aware that there might be a food poisoning risk.</td>
<td>1 -2 3*</td>
</tr>
<tr>
<td>4. If food looks and smells fine, then I eat it.</td>
<td>-1 2 3*</td>
</tr>
<tr>
<td>5. I think fresh food is safe.</td>
<td>-1 -1 -2</td>
</tr>
<tr>
<td>6. As long as a food item is sold in the UK, and approved by standards, there should be no risk.</td>
<td>-3 -1 -4</td>
</tr>
<tr>
<td>7. I believe that organic certification on labels means that food is safer.</td>
<td>2 3* -3*</td>
</tr>
<tr>
<td>8. When shopping for food I prefer products that have clear labels that say when the item goes out of date.</td>
<td>0 -3* -1</td>
</tr>
<tr>
<td>9. I usually check expiry dates when handling food at home.</td>
<td>2 -1 2</td>
</tr>
<tr>
<td>10. I don’t pay too much attention to food labels.</td>
<td>-3* 2 -1</td>
</tr>
<tr>
<td>11. I think some companies bend the truth on their labelling about what has gone into a product, and how it has been handled and produced.</td>
<td>4* 0 2</td>
</tr>
<tr>
<td>12. I like the idea of my food being natural, but I know that doesn’t mean safer.</td>
<td>1 0 3*</td>
</tr>
<tr>
<td>13. I would like to see “harvested by” or “butchered by” dates on products like vegetables and meat.</td>
<td>1 0 0</td>
</tr>
<tr>
<td>14. Labels on food are helpful for checking ingredients if I am concerned or interested in something specific.</td>
<td>2 -1 3</td>
</tr>
<tr>
<td>15. I would not buy processed food with unclear or no labelling.</td>
<td>3* -1 0</td>
</tr>
<tr>
<td>16. I do find that labels are very helpful in identifying safe food for me.</td>
<td>0 -3* 0</td>
</tr>
<tr>
<td>17. I think there is enough information on food packaging.</td>
<td>-3* 0 0</td>
</tr>
<tr>
<td>18. I think information about artificial ingredients is the most important information on food labels.</td>
<td>3 4 -3*</td>
</tr>
<tr>
<td>19. I often look at the ingredients list, because at the end of the day I want to know what I am eating.</td>
<td>4* 0 0</td>
</tr>
<tr>
<td>20. I think nutritional information is not really useful as it is so ambiguous, you need to be a nutritionist to understand it.</td>
<td>-4* 1 -1</td>
</tr>
<tr>
<td>21. I like to know country of origin as this gives me an idea of how the product has been grown.</td>
<td>3* 0 1</td>
</tr>
<tr>
<td>22. I believe expiry dates are the most important information on labels, so that you know when it’s safe to consume the product.</td>
<td>-2 -4 -2</td>
</tr>
<tr>
<td>23. I think “best before” and “use by” dates are important, but they are not the most useful information on labels.</td>
<td>1 3 2</td>
</tr>
<tr>
<td>24. I think that cooking instructions are mainly for ready-made foods.</td>
<td>0 1 -1</td>
</tr>
<tr>
<td>25. I believe that cooking instructions are needed only for those products with which you are unfamiliar.</td>
<td>0 1 0</td>
</tr>
</tbody>
</table>
26. I don’t need cooking instructions on food labels because I know how to cook my food.  
27. I believe that there should be clear cooking instructions on the label about how to best prepare the product.  
28. Some cooking instructions, like cooking times, are relevant for avoiding food poisoning.  
29. Most storage instructions on food labels are just common sense, you know you have to keep dairy and meat in the fridge.  
30. I don’t usually need storage instructions because I tend to shop locally and regularly or try to grow as much as I can.  
31. I think storage instructions on food labels are useful for most food products.  
32. Storage instructions are useful because if they weren’t there, then I’d probably leave stuff uncovered in the fridge or in a metallic tin or something like that.  
33. I believe that “use by” dates are for the protection of the seller, so the suppliers can be sure of no possible comeback on themselves if someone gets ill.  
34. I don’t worry too much about “use by” dates on food labelling because I think dates are overcautious.  
35. I look at “sell by” and “display until” dates when buying a product because they help me to check how long the product has been on the shelves.  
36. If the label says “use by” then I won’t eat the product after that date.

* Distinguishing statement

Spain

1. **Factor 1: Obsessed with expiry dates**

This opinion group is characterised by the high use of, and importance placed on, expiry date information. This group never eats food past the expiry date (statement 35, -4). They demonstrate a tendency not to discriminate between ‘use by’ and ‘best before’ dates (statement 27, +4), express an understanding that ‘use by’ dates give food safety information (statement 4, +3), and believe that no products deteriorate before the expiry date (statement 10, -4). They also indicate fairly strong agreement (+2) with statement 13 that food labels are important for understanding possible health risks. These statement rankings are further supported by comments from the interviews.
"What do you mean ‘consume things well past their expiry date’?? Never! If I check ‘use by’ dates why on earth am I not going to use them?" (participant 17)

Further evidence of the importance placed on expiry dates by this group is shown by the habit of checking ‘use-by’ dates as the first piece of information before buying something (statement 18, +4).

“‘Use by’ date is always the first thing I look at. The date is a warning so that I don’t eat food that is expired” (participant 13)

They also demonstrate strong (and distinguishing) disagreement (-3) with statement 28, suggesting that they would not bother looking at a product at home before deciding whether or not to eat it – if it had passed the use by date they would not consider eating it. This provides further evidence of the confidence in and importance placed on expiry date information. Moreover, the group feels confident in understanding what is contained in food after reading labels (statement 11, -1 and distinguishing) and has no problem finding relevant ‘use by’ information (statement 24, -3), which gives them further confidence for relying on label messages.

Nevertheless, and despite the importance given to expiry date information, not all label information is read. For example, labels are not regularly looked at before throwing food away (statement 17, -2 and distinguishing). Finally, the strong reliance on expiry dates is not only due to food safety concerns but also to financial reasons such as maintaining the opportunity to consume food later (statement 21, +3).

2. **Factor 2: Confident consumers**

These consumers are characterised by confidence in both the system of safety checks behind food labels, and in their own ability to decide which food is fit for consumption. These beliefs are accompanied by a relaxed attitude towards expiry dates and labels overall.

Opinions suggest that ‘use by’ dates are checked, but the decision taken at home whether or not to consume a product is key and in that context, dates may be ignored (statement 28, distinguishing, +2).
Also, this is the only group that does not disagree with statement 35 about eating food beyond the ‘use by’ date. The group is further distinguished from the other two by disagreement with statement 18 about ‘use by’ dates being the first thing checked before buying a product. Both of the other two groups score this +4.

“I am not so strict about food labels, I use my own judgement… there is foodstuff for which I don’t even check expiry dates because I trust they are not expired, I guess they are controlled… it’s an act of faith!” (participant 12)

Relaxed attitudes towards food labels and food safety information are evidenced by disagreement with the statement that everything that is on a label is read (statement 14, -4) and the fact that longer ‘use by’ dates are chosen in order to allow for more time between purchase and consumption, and not for food safety reasons (statement 21, +4).

Another distinguishing characteristic of the group is its low interest in product origin information as an indicator of either quality or safety (statement 7, -4). Issues of trust seem to be important. This is manifested by both the strong acknowledgement of the need to put trust in the system of health controls (statement 2, +4) and by the high trust placed in quality controls that lie behind labelling information (statement 1, +3). These high scores indicate a significant degree of confidence that food health controls work and are to be trusted.

“I have to believe [that health checks are made]… it’s a question of trust: it’s impossible to know it first hand but there must be some controls you trust” (participant 17)

This group disagrees with statements about only looking at labels when first buying a product (statements 25 and 26) and also disagrees with the statement about not looking at storage instructions (statement 33). This suggests that despite their somewhat relaxed attitude to label information they are actually quite high label users. Finally, the group coincides with the other two groups about the
importance of including ‘durability once open’ information on the label (statement 19) (both this and the first discourse score this high, at +3, whereas the third discourse simply agrees, at +2).

3. **Factor 3: Worried and confused**

This discourse is characterised by worry about the safety of food and confusion about the best approach for checking if food is safe to eat. Accordingly they utilise multiple approaches for checking this – use by dates, best before dates as use by dates, and their own senses. Confusion arises from lack of trust in the regulatory authorities and systems that lie behind labelling information.

This group is clearly worried about food safety (statement 3, +3). Because of this worry they demonstrate a high level of caution in choosing food products. This caution results in the use of labels such that they avoid eating food beyond expiry dates (statement 35, -1). They also strongly reject the idea that “there is no time to read labels” (statement 23, -4), on the basis that food safety is vital and time can always be found for reading labels. Both these views distinguish this group from the other two. Additionally, ‘use by’ dates are the first thing looked at on labels by this group (statement 18, +4). Moreover, worry about food safety may require unorthodox uses of expiry date information, such as consciously using ‘best before’ as a ‘use by’ date (statement 27, +4). Concern about food safety is also demonstrated by the use of own senses rather than depending entirely on label information. For example, this group uses touch and smell to understand if a product is in good condition (distinguishing statement 31, +3). Similarly, senses are important for deciding if food can be eaten once open, again instead of using label information (statement 34, +3).

“For my safety, and given that smell never fails me, I smell the product to decide whether to use it or not; I don’t trust labels but I keep to expiry dates, more so for products which I cannot check with the eye” (participant 5)

Lack of trust in the system that regulates food safety and labelling is a pronounced characteristic of this group. Interviews revealed that labels are seen as marketing tools. Interestingly, this group’s distrust is
accompanied by caution in food consumption choices described above, which translates, as noted, into paying attention and adhering to food safety cues on labels.

“Starting from the basis that what they tell me is a lie... I don’t trust the product, but I pay attention to what the expiry date tells me. That’s [also] the reason why I use ‘best before’ as ‘use by’ information, because I distrust” (participant 4).

The distrust that characterises this discourse is evident in the low “trust in quality controls that lie behind labelling information” (statement 1, -4) and “use and trust” of food labels (statement 15, -3), as well as in its refusal to believe that ‘use by’ dates are “an indication of how safe is the food I eat” (statement 4, -3). This low trust goes hand in hand with a refusal to trust the system of quality controls as an unavoidable necessity (statement 2, -3), another marked difference between this discourse and the other two.

“I don’t trust quality controls behind labels because I don’t believe all information is real, e.g. chemical components, etc... I am unconvinced both by controls and the information I read, I believe that they would tell me anything in order to sell... many times products are not as good as they say... I believe they do so for marketing reasons” (participant 3)

This apparent rejection of the system that regulates labelling information expressed in low levels of trust, is somewhat contrarily coupled with the caution noted above, suggesting this group experiences a considerable amount of confusion when trying to choose products they believe to be safe.

In another demonstration of their desire for food safety information that may help them to be sure that what they are eating is safe, and in agreement with the other two discourses, this opinion group also believes that ‘durability once open’ information should be part of the label (statement 19, +2).

As this group is clearly worried about the safety of their food they want information that they can believe in, rely on and have trust in. At the moment that is lacking for this group.
### Table 2: FACTOR ARRAY FOR SPAIN

<table>
<thead>
<tr>
<th>Statement</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I have trust in quality controls that lie behind labelling information</td>
<td>0* 3* -4*</td>
</tr>
<tr>
<td>5. I have to believe that the system of food sanitary control works, otherwise I wouldn’t eat anything! In the end, it’s all a matter of trust…</td>
<td>2* 4* -3*</td>
</tr>
<tr>
<td>6. I am concerned about the safety of the food I eat</td>
<td>1* 3 3</td>
</tr>
<tr>
<td>7. “Use by” date gives me an indication of how safe is the food I eat</td>
<td>3* 0* -3*</td>
</tr>
<tr>
<td>8. “Use by” date gives me an indication of how fresh is the food I eat</td>
<td>0 0 2*</td>
</tr>
<tr>
<td>9. There is never too much label information, on the contrary, I always think that information is missing</td>
<td>0 1 1</td>
</tr>
<tr>
<td>10. I am interested in food origin information because it gives me more safety (if there was a problem it would be easier for me to identify where it originated)</td>
<td>1 -4* 2</td>
</tr>
<tr>
<td>11. I am interested in food origin information for reasons of quality not safety</td>
<td>1* -1 0</td>
</tr>
<tr>
<td>12. “Best before” and “use by” dates give different information which is why both indications should be maintained</td>
<td>0 -1 1</td>
</tr>
<tr>
<td>13. There are products, such as fresh produce, that regularly deteriorate before reaching “use by” date</td>
<td>-4* 2* 0*</td>
</tr>
<tr>
<td>14. When reading a label I am not capable of understanding everything that is in a food product</td>
<td>-1* 2 2</td>
</tr>
<tr>
<td>15. It would be best if there was only one expiry date indication, neither “before” nor “after” – easier for everyone</td>
<td>0 -1 0</td>
</tr>
<tr>
<td>16. Food labels are an important means for understanding possible health risks</td>
<td>2 1* 2</td>
</tr>
<tr>
<td>17. I read everything that is on a label</td>
<td>-1 -4* -1</td>
</tr>
<tr>
<td>18. I use and trust labels</td>
<td>1 1 -3*</td>
</tr>
<tr>
<td>19. Normally, before preparing food, I read the preparation instructions</td>
<td>2* 0 0</td>
</tr>
<tr>
<td>20. Where necessary, before throwing away food I look at the “once opened, use within” information</td>
<td>-2* 1 1</td>
</tr>
<tr>
<td>21. “Use by” date is the first thing I look at before buying something</td>
<td>4 -2* 4</td>
</tr>
<tr>
<td>22. Labels should indicate durability “once opened”</td>
<td>3 3 2</td>
</tr>
<tr>
<td>23. I would like to see information on the way the product looks if it is not fit for consumption once opened</td>
<td>-3* 0* 1*</td>
</tr>
</tbody>
</table>
24. I choose products with longer “use by” dates because it gives me more time to consume them, not for food safety reasons  
3* 4* 0*

25. The most useful label information is origin information which isn’t always available  
-1 -2 1*

26. Sometimes it’s tricky to read labels because you don’t have enough time  
-2 -1 4*

27. Sometimes you cannot find “use by” dates and you only realise after you have opened the product  
-3 -2 0*

28. I look at “storage conditions” information only for products I buy for the first time  
2* -3* -1*

29. I look at “cooking and preparation” instructions only the first time I buy the product: once you’ve learned it you don’t look at it again  
0 -3* 0

30. I always use “best before” date as an expiry date  
4 -1* 4

31. I always look at “use by” date so that I don’t buy products that have expired, but when I’m at home I decide if I’ll eat it even if it’s expired  
-3* 2* 0*

32. I believe that label information tries to convince me to consume the product for which reason I consume past food expiry dates  
-2 -2 -1

33. Overall, I don’t look at labels in depth  
-1 0* -2

34. To understand whether a product is in good condition, I first observe how it looks, I smell it or touch it  
1 1 3*

35. I never look at “cooking instructions” when I buy food  
-1 0* -2

36. I do not look at “storage conditions” because I am guided by the place where products are stored in the shop  
-2 -3 -2

37. In order to find out if I can eat food once opened, I see how it looks or smell it instead of looking at “once open consume within” information  
0* 2* 3*

38. I eat food well beyond “use by” dates  
-4* 0* -1*

39. Overall, I do not use “batch date” or “packaging date” when I buy food products  
0 0 -1

* Distinguishing statement

Discussion

The research conducted in the UK and Spain reveals a wide variation in attitudes towards, and use of, food safety information on food labels. Participants include those who are very concerned about the risk of food poisoning, who carefully read information such as use by dates, and who are likely always to adhere to the information provided (UK factor 2B and Spanish factor 1). At the other end of the spectrum are those participants who believe use by dates are overcautious and who consequently pay them little attention, relying instead on their own judgement (UK factor 2A). In between, are consumers who may use labels to some extent but who have a relaxed attitude towards the information provided (Spanish factor 2 and UK factor 3).
Behind these positions lie complicated combinations of various issues. One of the most important of these issues is trust in the regulatory system and safety controls that exist throughout the food chain. Some consumers do not have trust in regulatory organisations and thus are unlikely to adhere to label messages. Others do have trust in the regulatory system and consequently do adhere to food safety messages on labels. Others still express a lack of trust in safety procedures and those with responsibility for enforcing them, but despite this do take notice of the information on labels. Further, there are those who demonstrate trust in regulatory bodies and procedures but this results in a failure to always follow messages on labels since they assume that safety is assured by those procedures.

Interestingly, participants demonstrate concerns about long-term health issues related to food safety that are associated with ingredients. In some cases, these concerns over-ride concerns about short-term health issues associated with food poisoning. This may be a result of focused promotional campaigns by national food safety authorities that have highlighted the importance of information relating, for example, to levels of salt, fats and sugars in food products, and their relevance to long term health. Importantly this suggests that information campaigns that highlight certain aspects of food labelling information may have some success in raising awareness amongst consumers.

Some participants demonstrate a high level of confidence in their own judgement about whether or not a product is safe to consume and this influences the extent to which they take notice of information such as use by dates. This is connected to attitudes towards risk, such that people do not believe that they themselves are at risk even if they believe there are inherent risks. Their belief is that things always happen to other people which is why labelling information may be useful for others but not themselves.

There are also important findings relating to understanding and knowledge of food safety information, such as the difference between use by and best before dates. In some cases it appears that people willfully use best before date information as use by date information, even when they claim to understand the difference between the two. In other cases, it appears that there may be confusion about the difference between these two aspects of food safety information.

Taken together these issues provide policy makers with many challenges if they are to encourage more people to take notice of, and act upon, food safety information on food labels.
Conclusions

Previous studies have indicated the extent to which some consumers may use different types of labelling information and in what circumstances. The current study has added to this by exploring the issues behind the use of labels in some depth. Results from this study confirm that consumers have diverse concerns about food safety, and that a broad range of relevant information on food labels is being utilised by them to a lesser or greater degree.

The implications of the findings are that policy should focus on ways of increasing consumer attention and adherence to relevant messages where they are currently used only casually. Authorities should provide specific messages about the importance of food label information for avoiding food poisoning – this needs to make it clear which pieces of information on food labels relate to food safety. As certain participants use best before dates as use by dates, clear explanations are needed of the difference between these two things. In addition, storage and cooking instructions appear to be infrequently used by many respondents suggesting a need to clarify the food safety relevance of this information. To date, there has been little emphasis on messages that explain to consumers the information that relates to short-term health issues relating to food poisoning. This issue should be addressed. Messages about the risks of ignoring relevant food safety information on labels would be helpful but these must not ignore the confidence that some people have in their own knowledge, experience and intuition. Finally, the lack of trust in regulatory bodies, producers and quality controls needs to be addressed, for example, through public involvement in risk-management decisions throughout the food chain. This could involve consultation on such issues as label design for addressing food safety risk issues.

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OCTA (Observatorio de Consumo y de la Distribución Alimentaria), (2004). *Etiquetado de los Productos* (Product Labelling), Madrid: Ministerio de Agricultura, Pesca y Alimentación


