A Review of Consumer Food Safety Research to Identify Domestic Risk Factors Associated with Listeriosis.

Ellen W. Evans* & Elizabeth C. Redmond

ZERO2FIVE® Food Industry Centre, Cardiff Metropolitan University, United Kingdom
*Corresponding author: elevans@cardiffmet.ac.uk

Introduction

Reported incidence of listeriosis has more than doubled in Europe[1], with two-thirds of reported cases associated with adults aged 60 years and UK incidence among older adults reported to have tripled[2].

Majority of listeriosis incidence are predominantly associated with ready-to-eat (RTE) foods[3] and are reported to be largely sporadic[4], which may be associated with unsafe food handling and storage practices in consumers’ domestic kitchens[5].

Consequently, recommended domestic practices to reduce risks associated with Listeria monocytogenes include[6]:

• Adhere to ‘use-by’ dates on RTE foods
• Ensure safe refrigeration temperatures
• Store RTE foods within two days of opening modified atmosphere packaging

However, data relating to older adults food safety practices are lacking and is required to ascertain factors that may contribute to the risk of listeriosis in the domestic kitchens of older adults[6].

Methods

A systematic review of literature was conducted to obtain consumer food safety data which included the collation of published articles, reports and conference presentations (=200).

Primary research papers were reviewed and analysed using a content analysis approach. Findings were summarised according to assessment of knowledge, attitudes, self-reported practices, and/or actual behaviours of the recommended food safety practices required to reduce the risk of listeriosis.

Selected sources were stored using EndNote X7 reference manager. Findings relating to the aims of the review were collated in a designed Microsoft Access 2007 database. Analysis was conducted using Microsoft Office Excel 2007.

Cumulatively, two hundred studies conducted over 35 years from 28 countries were reviewed for inclusion of recommended practices to reduce the risks associated with listeriosis in the home. As illustrated in Figure 1; overall, only 43% of studies assessed consumer cognitive or behavioural data associated with listeriosis risk factors, of which 27% assessed refrigeration practices, 23% determined storage length of opened RTE foods and 21% ascertain adherence to ‘use-by’ dates.

The majority of studies utilised survey based data collection methods (questionnaires/interviews), consequently, findings on listeriosis risk factors were based on self-reported practices (33%) and knowledge (20%), attitudes (7%) and actual behaviour (13%)[7]

Evoked though older adults were included in 33% of studies, only 7% presented older adults food safety data.

As detailed in Table 1, it was determined that consumers may have some knowledge or have positive attitudes towards some of the food safety practices recommended to reduce the risks associated with Listeriosis, however practices did not correspond.

Discrepancies have been determined between consumer knowledge, attitudes, self-reported and actual behavioural data. However, there is a lack of studies that compare consumer behaviour and cognition. Actual behaviour and attitudinal data relating to listeriosis risk factors are particularly lacking.

Research Aim

The aim of this study was to review consumer food safety studies to consolidate and cumulatively determine consumer cognitive and behavioural risk factors that may be associated with listeriosis in the home, and in particular, those that are implemented by older adult consumers (aged 60+ years).

As detailed in Table 1, it was determined that consumers may have some knowledge or have positive attitudes towards some of the food safety practices recommended to reduce the risks associated with Listeriosis, however practices did not correspond.

Table 1: Cognitive and behavioural comparison of knowledge, attitudes, self-reported practices and actual behaviours risk factors

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Attitudes</th>
<th>Self-reported practices</th>
<th>Actual behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>49 – 62% aware ‘use-by’ date was the best indicator of food safety</td>
<td>73 – 75% believed avoiding foods with expired dates to be important</td>
<td>18 – 56% reported to ‘never’ eat food beyond its expiry date</td>
<td>41 – 89% had foods with expired ‘use-by’ dates in refrigerators</td>
</tr>
<tr>
<td>44 – 93% unaware of recommended refrigeration temperatures</td>
<td>97% believed ensuring correct refrigerator temperature important</td>
<td>0 – 24% reportedly to own a refrigerator thermometer</td>
<td>47 – 81% refrigerators exceeded recommended temperatures</td>
</tr>
<tr>
<td>96% aware that improper storage of food may represented a hazard</td>
<td>No data available</td>
<td>40 – 69% reported ‘always/usually’ follow storage instructions</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Although only 7% of studies presented older adults food safety data; findings indicate that larger proportions of older adult consumers may deviate from recommended practices to control listeriosis in the domestic kitchen.

Conclusion

• Data suggest older adults may implement greater food safety malpractices that increase risks of listeriosis, however such cognitive and behavioural data detailing older adults listeriosis risk factors are lacking.

• In-depth research is required to determine older adults’ food safety attitudes and actual behaviour in conjunction with knowledge and self-report of practices linked to increased risks of listeriosis.

• Such data is required to develop risk management strategies to improve the food safety practices of older adult consumers in the home.

References


Figure 1: Inclusion of recommended practices to reduce the risks associated with listeriosis in consumer food safety studies (=200)