Food Safety Knowledge of Secondary School Pupils in South Wales, UK.

Leanne Ellis* and Ellen W. Evans

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

Introduction

The aim of the research was to determine the level of school pupil food safety knowledge in the key areas of food safety identified by the FSA in their 4C’s strategy (cooking, cleaning, chilling and cross contamination) (FSA, 2006).

Methods

Recruitment: The participants were secondary school pupils (aged 11–18 years old) attending careers fairs across South Wales, UK (n=722). The careers fairs (n=12) were advertised in school guides and a level (14-18) and A level (18-16) subject options were introduced between 2011 and 2017 in the South Wales region (Figure 1).

Data Collection: A short multiple choice questionnaire was utilized based on the FSA 4C’s principles (FSA, 2006), demographic data (age, gender, school and whether they studied Food Technology/Home Economics) were captured.

Data analysis: Descriptive and inferential statistics were conducted using Microsoft Excel and IBM SPSS Statistics package 23.

Ethical Approval: Approval was obtained from the Health and Care Ethics Panel at Cardiff Metropolitan University.

Purpose

To date, UK data detailing the food safety knowledge of consumers has not been collated. Although the majority are correct, awareness of recommended temperatures was lacking. Just half (50.7%) were aware the temperature for a refrigerator was 4°C (Figure 4).

Results

Respondent demographic

The majority of respondents (44%) were aged 13 years. Just over a fifth (24.2%) were 16 years old and 17.6% were 14 (Table 2).

Table 1. Gender of participants (n=722)

<table>
<thead>
<tr>
<th>Age</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 years</td>
<td>38.6</td>
<td>32.0</td>
</tr>
<tr>
<td>13 years</td>
<td>35.2</td>
<td>39.6</td>
</tr>
<tr>
<td>14 years</td>
<td>17.6</td>
<td>25.4</td>
</tr>
<tr>
<td>15 years</td>
<td>6.1</td>
<td>10.8</td>
</tr>
<tr>
<td>16 years</td>
<td>2.8</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Food safety knowledge

The highest number of correct responses related to the identification of foods likely to contain the most bacteria, over three quarters of pupils (76.6%) correctly identified frozen raw chicken (see Figure 2).

Figure 2. Food products believed to contain the most bacteria (n=722)

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[Image 3991x334 to 5079x728]

Seven twenty percent were aware foodborne infection can result from food safety mispractices at retail, industry, and domestic settings. The home kitchen was perceived to be the most likely source.

Although the majority were correct, awareness of recommended temperatures was lacking. Just over half (50.7%) were aware the temperature for a freezer was –18°C (Figure 3) and 56.5% were aware the temperature for a refrigerator was 4°C (Figure 4).

Figure 3 knowledge of recommended temperatures (n=722)

Figure 4 knowledge of recommended temperatures (n=722)

School pupils food safety knowledge

The majority of school pupils correctly answered 4 of the 7 food safety questions, correctly, 14%, correctly answered all questions, 17% failed to correctly answer any questions (Figure 5).

Figure 5 Food safety knowledge scores (n=722)

The majority of pupils (70.3%) were aware that hands should be washed at all three given scenarios, however, 21.6% believed handwashing to be unnecessary after handling raw meat, just over half (52.1%) were aware that cross contamination can occur when handling raw meat and not before handling ready-to-eat food.

Just over half of responding pupils were aware bacteria grow at an increased rate when warm (55.7%) and that bacteria will multiply readily between 3°C and 42°C (59.1%). However more than a quarter (28.1%) believed freezing killed bacteria.

Figure 6. Knowledge of cross contamination (n=722)

Figure 7 Knowledge of recommended temperatures (n=722)

Differences in knowledge scores

A significant difference was determined according to age (p<0.001), whereby pupils aged 15 years old obtained higher food safety knowledge scores (Md=5, IQR=3) than pupils aged 14 years old (Md=4, IQR=2) and 13 years old (Md=4, IQR=3) (Figure 8).

Figure 8. Food safety knowledge score differences between boys (n=722)

Figure 9. Food safety knowledge score differences between girls (n=722)

Food safety knowledge scores of pupils studying Food Technology/Home Economics were not significantly different (p=0.035).

Significance of study

It is acknowledged that food safety knowledge does not equate to food safety behaviour, however knowledge may inform behavioural intentions. Findings indicate 23.4% of secondary school pupils lacked sufficient food safety knowledge and awareness of basic food safety rules in this study.

Consequently, as the school pupils that participated in this study are the food preparers of the future, there is a need to explore the requirement of food safety education specifically targeting pupils attending secondary schools.

To enable this, the research has identified the need to explore the provision and prevalence of food safety education in UK secondary schools and identify the potential impact of Food Technology/Home Economics lessons on food safety practices of school pupils.

Acknowledgements

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References

Byndloss-McClintock C. et al., (2010). Food Safety Knowledge and Beliefs of Middle School Children’s Involvement in Food Safety Education. Journal of Food Science Education. (9) 1: 71-76.

