







Vicky J. Gould<sup>1\*</sup>, Ellen W. Evans<sup>2</sup>, Nisreen Alwan<sup>3</sup>, Laura Hjeij<sup>3</sup>and Elizabeth C. Redmond<sup>2</sup>

<sup>1</sup>Cardiff School of Sport and Health Sciences, Cardiff Metropolitan University, Cardiff, United Kingdom.

<sup>2</sup>ZERO2FIVE Food Industry Centre, Cardiff Metropolitan University, Cardiff, United Kingdom.





### Introduction

Internationally, the home is associated with incidence of food-poisoning and food safety education is required to improve consumer food-handling behaviors. Foodborne illness is reportedly widespread in Lebanon, but the absence of a proper disease reporting mechanism makes incidence difficult to quantify.<sup>1</sup>

Lebanon has a complicated and evolving public health structure and political challenges impact on the robust implementation of food safety policy and strategy<sup>2</sup>. Consumer food safety knowledge is critical to reduce risk of foodborne illness to health, a study showed that Lebanese university students had low levels of food safety knowledge<sup>3</sup> while another study amongst food business owners found food safety knowledge to be inadequate<sup>4</sup>.

Recognising that food safety in Lebanon is a major public health issue, understanding cognitive behavioural influences, such as attitudes, is important for development of educational initiatives; to-date, little is known

# Purpose

The aim of the research was to determine and explore Lebanese consumers' risk perceptions, concerns and perceived adequacy of food safety information. Collection of this data could then inform development of appropriate educational initiatives to improve consumer food safety in Lebanon.

### Methods

**Recruitment:** A convenience sample of consumers (aged >18 years) who were friends and family of the researchers at MUBS, Lebanon, were recruited via a snowball method and informed of the study via a participant information sheet.

**Data Collection:** A Quantitative, self complete food-safety questionnaire was completed by consenting participants (n=97) using Likert scales to assess attitudinal responses and visual analogue scales to assess perceived likelihood of contacting foodborne illness. Demographic data were also captured.

**Data analysis:** Quantitative data analysis was undertaken using Microsoft Excel 2016 and IBM SPSS Statistics package version 22.

**Ethical Approval:** Approval was obtained from the Health Care and Food, Ethics Panel at Cardiff Met., and the Ethics Panel at MUBS, Lebanon.

### Results

### Perceived risk of foodborne illness

The majority of consumers (87%) believed foodborne illness to be common in Lebanon, with more than half (60%) of consumers reporting that they or their family had experienced food poisoning in the last five years. (Table 1)

#### Table 1. Experience of food poisoning (n=97)

Experience of food poisoning in the last 5 years	Yes	No
Themselves	60%	40%
Family members	62%	38%

Risk of food poisoning was perceived to be much lower when consuming food prepared in the home than from commercial businesses (Table 2). When looking at commercial businesses both takeaways and deli counters in supermarkets were seen as high risk which may be linked to food safety concerns which are specific to Lebanon (Table 3).

#### Table 2. Perceived risk of food poisoning with regard to food location (n=97)

Perceived	Perceived Likelihood of illness	
Very Likely-Likely	Unlikely-very unlikely	
33%	53%	
35%	41%	
63%	18%	
70%	13%	
76%	6%	
	33% 35% 63% 70%	

#### Table 3. Level of agreement with food safety concerns (n=97)

	Level of agreement with statement		
Food safety concern statements	Strongly agree – agree	Neither agree or disagree	Disagree – strongly disagree
I am confident that restaurants/ food outlets always follow food safety guidelines	32%	22%	46%
When I buy food from the shop I am concerned about how it has been stored	57%	24%	18%
It is difficult to store refrigerated food safely due to interruptions in electrify supply	79%	14%	7%
The electricity supply does not affect food safety in my home	42%	14%	44%
I am concerned about the safety of drinking water in my home	76%	9%	15%
The drinking water in Lebanon does not impact on food safety	48%	19%	33%

### Food safety concerns significant to Lebanon

Despite consumers reporting low levels of perceived risk of contracting poisoning in the home, only 38% of consumers agreed that their current food safety behaviours did not need improvement and almost half were not confident that the current way they prepare foods in the home would not give somebody food poisoning.

Consumers also felt that food safety was a priority for consumers in Lebanon with only 25% of the sample disagreeing with this statement. This indicates that there may be willing for consumers in Lebanon to further their knowledge on food safety behaviours to reduce the risk of foodborne illness.

#### Table 4. Level of agreement with food safety concerns (n=97)

Food safety concern statements	Strongly agree – agree	Neither agree or disa- gree	Disagree – strongly disagree
Food safety is not a priority for the health of consumers in Leb- anon	51%	25%	25%
My current food safety behaviours do not need improvement	38%	33%	29%
I am confident that the way I prepare food will not give anyone food poisoning	51%	38%	11%
I do not need to be given any food safety advice	28%	31%	41%
Other people need advice concerning food safety more than I do	42%	36%	22%

# Significance of study

Information from this study can inform development of educational initiatives designed to raise awareness of food-safety issues, bring about behavioural improvement and reduce the risk of food-poisoning in Lebanon.

Consumer attitudes towards food-safety risks in Lebanon were variable; data indicated awareness of increased food-safety risks due to the countries' unique public health infrastructure, however the failure to associate the home with food-poisoning incidence may hinder educational efforts and requires further exploration.

## Acknowledgements

Cardiff Met., the ZERO2FIVE Food Industry Centre and MUBS, wish to acknowledge the consumers who completed the interviews and members of the team responsible for attending the Health Day to facilitate data collection.

### References

- 1.El-Fadel, M. Maroun, R. Semerjian, L and Harajli, H. (2003) A health based socio-economic assessment of drinking water quality: the case of Lebanon. Management of Environmental Quality: An International Journal. Vol. 14 No. 3 pp. 1477-1835.
- 2. Ghaida, T.A. Spinnler, H.E. Soyeux, Y. Hamieh, T. and Medawar, S. (2014) Risk-based food safety and quality governance at the international law, EU, USA, Canada and France: Effective system for Lebanon as for the WTO accession. Food control. Vol 44. Pp. 267-282.
- 3. Hassan F. and Dimassi, H. (2014) Food safety and handling knowledge and practices of Lebanese university students. Food Control. Vol. 40 pp. 127-133.
- 4. Faour- Klingbeil, D. Kuri, V and Todd, E. (2015) Investigating a link of two different types of food business management to the food safety knowledge, attitudes and practices of food handlers in Beirut, Lebanon. Food Control. Vol 55. Pp. 166-175.