Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.
A Study of Food Allergy Awareness and Knowledge among Owners and Managers of Wellington City Eating-houses

A thesis presented in partial fulfilment of the requirements for the degree of

Masters of Technology
In
Food Technology

At Massey University, New Zealand

Kanchan M Sharma

2011
ABSTRACT

The aim of this study was to explore the awareness and knowledge related to food allergy among owners and managers of registered eating-houses in Wellington city. Trained interviewers were recruited to administer a questionnaire to eating-house owners and managers. The questionnaire sought to evaluate awareness about declaration of food allergens, knowledge about how food allergens could become part of a meal, the type and content of food allergy management plans in place, use of latex gloves and food allergy training received. Data from the questionnaire was analysed using simple frequency distribution for all variables. Chi-squared ($X^2$) tests were used to assess relationship between variables.

Of 163 managers and owners of eating-houses invited to participate in the study, 124 (76%) accepted and 39 (24%) declined. Reasons for refusal were due to time constraints (n=23) and inability to communicate in English (n=16). More than half of the respondents were not aware there were legal requirements to declare food allergens and only seven percent knew the requirements were set out in the Food Standards Code. Knowledge of food allergens requiring declaration significantly differed among eating-houses that specialised in ethnic foods compared to those that did not (p<0.05).

Most respondents had good knowledge about the preparation, serving and cross-contamination of food allergens. However more than half of the respondents erroneously agreed or were unsure that serving water would help dilute an allergic reaction and 65% agreed or were unsure that food allergens could be transmitted through an ill food handler. There was a high level of self-efficacy to provide a safe meal and to manage an allergy emergency.

Owners and managers of eating-houses who reported previous training in food allergy management were more likely to have in place a written food allergen management plan (p=0.05) and a plan for handling a food allergy emergency (p=0.05) compared to those
without training. They were also more likely to have a training programme in place for their staff (p<0.05). Most respondents were interested in further training.

There was higher usage of latex gloves in food preparation among respondents who had received past training of food allergy management compared to those without training (p<0.05) however; latex gloves were used less among those who were aware of skin allergy issues associated with latex glove use compared to those who were unaware (p<0.05).

The findings from this study suggest the development of an education programme may help improve the awareness and knowledge of owners and managers of eating-houses and thereby help to reduce the risk of food allergic reactions amongst consumers in this setting. A change in food establishment registration requirements to include a competency to communicate in English is warranted. To help provide safe meals a written food allergy management plan and training for staff is recommended. For the protection of public health such requirements could be mandated as part of the annual verification process for renewal of eating-house registration.
To my mother, Mrs Gyanmati Prasad,
who instilled the value of knowledge in me
ACKNOWLEDGEMENTS

I would like to acknowledge the following people who have assisted me with this study.

Dr Greg Simmons, Public Health Physician who introduced me to the subject area and assisted me in the conceptualisation of this study.

Dr Carol Wham, my supervisor who provided me with guidance, invaluable advice and support throughout the course of this study.

The New Zealand Food Safety Authority (now amalgamated with Ministry of Agriculture and Forestry) for having faith in my study and partially funding this study.

The Environmental Health Officers at Wellington City Council; Andrew Taylor, Mike Fisher, Jessie Zhong, Amber Pacheco, Catherine Dawson, Kay Woodford and Radha Odean for assisting with data collection by administering the questionnaires.

My employer, Hutt Valley District Health Board, for supporting me through leave and partial funding of my course fees.

My peers, Christine Roseveare and Kelvan McEwen for assisting me with data analysis and peer support.

Brian Caughley, Senior Lecturer from Massey University for peer reviewing my results.

Last, but not least, my husband, Raaj whose patience, energy and strength kept me motivated through this journey.

Without the support and advice of all of above, this thesis would not have been completed.
TABLE OF CONTENTS

ABSTRACT ........................................................................................................................... ii
ACKNOWLEDGEMENTS ..................................................................................................... v
TABLE OF CONTENTS ...................................................................................................... vi
LIST OF FIGURES ............................................................................................................. vii
LIST OF TABLES .............................................................................................................. viii

CHAPTER 1: INTRODUCTION .......................................................................................... 1
CHAPTER 2: LITERATURE REVIEW ............................................................................... 4
  2.1 Food Allergy: Symptoms, Causes and Prevalence ...................................................... 4
  2.2 Food establishments ..................................................................................................... 6
  2.3 Food allergy in the food establishment setting ............................................................ 8
  2.4 Legal requirements ..................................................................................................... 11
  2.5 Knowledge and behaviour change ............................................................................. 15
  2.6 Food allergy training .................................................................................................. 17
  2.7 Aims and Objectives .................................................................................................. 18

CHAPTER 3: METHODS ................................................................................................... 20
  3.1 Study Design .............................................................................................................. 20
  3.2 Interviewers ................................................................................................................ 20
  3.3 Sample ........................................................................................................................ 21
  3.4 The questionnaire ....................................................................................................... 21
  3.5 Questionnaire pilot ..................................................................................................... 23
  3.6 Data collection ........................................................................................................... 24
  3.7 Ethics .......................................................................................................................... 24
  3.8 Data analysis .............................................................................................................. 24

CHAPTER 4: RESULTS ..................................................................................................... 27
  4.1 Characteristics of the eating-houses ........................................................................... 27
  4.2 Awareness about declaration of food allergens ......................................................... 28
  4.3 Knowledge about preparation, serving and cross-contamination of food allergens . 31
  4.4 Self-efficacy to provide a safe meal ........................................................................... 37
  4.5 Knowledge and self-efficacy for managing an allergy emergency ............................ 38
  4.6 Occurrences of food allergic reactions ....................................................................... 40
  4.7 Use of latex gloves ..................................................................................................... 42
  4.8 Training in food allergy ............................................................................................. 43
  4.9 Summary of results .................................................................................................... 45

CHAPTER 5: DISCUSSION ............................................................................................... 47
CONCLUSIONS AND RECOMMENDATIONS .................................................................... 60

REFERENCES ..................................................................................................................... 63
APPENDIX 1 STUDY QUESTIONNAIRE ....................................................................... 68
APPENDIX 2 QUESTIONNAIRE FROM NEW YORK STUDY ..................................... 75
APPENDIX 3 RESEARCH INFORMATION SHEET FOR PARTICIPANTS ................. 77
LIST OF FIGURES

Figure 1 Knowledge score by Type of eating-house ........................................................... 34
Figure 2 Knowledge score by eating-houses that specialise in ethnic food and those that are general.................................................................................................................. 34
Figure 3 Knowledge scores of interviewees .................................................................. 35
Figure 4 Knowledge score by size of eating-house ....................................................... 36
Figure 5 Knowledge score by number of years of experience in food service sector .... 36
Figure 6 Self-efficacy ratings compared with knowledge score .................................. 37
Figure 7 Self-efficacy compared with status of plan for handling a food allergy emergency .................................................................................................................. 40
Figure 8 Number of customers indicating food allergy compared with size of eating-house ................................................................................................................. 41
Figure 9 Number of customers indicating food allergy compared to customer turnover rate ....................................................................................................................... 42
Figure 10 Knowledge score compared with respondent’s training history............... 44
LIST OF TABLES

Table 1 Demographic features of 124 eating-houses ........................................................... 29
Table 2 Types of ethnic eating-houses .................................................................................. 30
Table 3 Awareness of legal requirements to declare food allergens .................................... 30
Table 4 Foods identified by respondents to be declared under the food labelling legislation .............................................................................................................................................. 31
Table 5 Agreements to food allergy knowledge items ......................................................... 32
Table 6 Comparison of knowledge questions between eating-houses that specialise compared to eating-houses not specialising in ethnic food .................................................. 33
Table 7 Self-efficacy of respondents for providing a safe meal ........................................... 37
Table 8 Self-efficacy of respondents for handling severe allergic reaction ......................... 38
Table 9 Knowledge about addressing an allergy emergency ............................................... 38
Table 10 Identifying key components of a food allergen management plan ........................... 39
Table 11 Occurrence of allergic reactions in eating-houses ................................................ 41
Table 12 Use of latex gloves and awareness of allergy issues ............................................. 43
Table 13 Experience in food allergy training ................................................................. 43
Table 14 Key areas identified for future food allergy training ............................................ 44
Table 15 Knowledge questions compared between the New York study and this study .... 52