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The Australian Food and Trust Survey: Demographic indicators associated with food safety and quality concerns

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ABSTRACT

Objective: Safety and quality associated with the production, marketing and consumption of food, together with overall levels of trust in the food supply chain, are increasing in importance in our society. The aim of this study was to identify the demographic differences in a range of safety and quality variables in regard to levels of consumer trust in the food supply chain.
Design: An Australia-wide population telephone survey on a random sample of the Australian population aged 18+ years of age was undertaken. Univariate and multivariate analyses were undertaken on each of the eight safety and quality variables and one composite variable.
Setting: Australia.
Subjects: In total, 1108 interviews with 49.3% of the sample males and with a mean age of 45.12 years (SD 17.63).
Results: Multivariate analysis indicated that gender (females), age (older persons) and annual household income (lower income) were the demographic groups more likely to be included in the final models that considered various quality and safety issues to be important. Higher education was related to more importance being placed on the variable assessing the importance of the producer maintain control of hygiene but lower education level was related to the variable assessing the importance of the premises being tested regularly by inspectors.
Conclusion: The perceptions that adults place upon the safety and quality of food are important in ultimately defining, amongst other things, their food buying choices. As such, this research has highlighted demographic characteristics associated with the importance placed on a wide range of safety and quality issues so as to assist in providing evidence for targeting of appropriate campaigns to increase consumer confidence.

1. Introduction

Concerns about the integrity of the food supply have increased in recent years. It is now recognised that food safety and quality concerns are critical in all the components of the food supply chain (Angulo & Gil, 2007; Rohr, Luddecke, Drusch, Muller, & Alvensleben, 2005). Consumers are increasingly expecting better quality products and safer foods (Angulo & Gil, 2007; Lupien, 2007; Swinnen & Vandemoortele, 2009) and these higher expectations are resulting in higher requirements being placed upon producers and exporters (Savov & Kouzmanov, 2009). Coupled with the rise in consumer activist groups and the possibility of adverse media reporting (Sofos, 2008), increased pressure has been placed upon policy makers and law makers to ensure food safety and quality are maintained to a high standard (Savov & Kouzmanov, 2009).

Food safety practices from the 1990s have increasingly focussed upon risk analysis of food production from farm-gate to table (Bergeaud-Blacker & Ferrenti, 2006; Halkier & Holm, 2006). At a global level the introduction by the World Trade Organization of Sanitary and Phytosanitary measures, while primarily designed to remove trade barriers arising from standards for imported food, have ensured that national health standards are based on scientific

Abbreviations: ABS, Australian Bureau of Statistics; ARC, Australian Research Council (ARC); ARIA, Accessibility/Remoteness Index of Australia; CATI, Computer Assisted Telephone Interview; df, degrees of freedom; IRSD, Index of Relative Socio-Economic Disadvantage; OR, odds ratio; SEIFA, Socio-Economic Indexes for Areas.

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assessment of risk (Silverglade, 2000). Knowledge of safe food handling at the level of retail and household now include a plethora of practices including correct procedures for personal hygiene, safe food temperatures, adequate cooking facilities, and avoiding cross contamination of food (Commonwealth of Australia, 2001; Fryer & Robbins, 2005; Hillers, Medeiros, Kendall, Chen, & DiMascola, 2003; Medeiros et al., 2004; Trienekens & Zuurbrier, 2008). At the other end of the food chain the introduction of Hazard Analysis and Critical Control Point (HACCP) systems manage microbial issues through identification and monitoring of hazards by the food industry (Garcia Martinez, Fearne, Caswell, & Henson, 2007); alongside of increased, enforcement of standards, use of inspectors, and labelling of products (Campbell et al., 1998; Letia & Groza, 2010; Magnussan, 2010; Nestle & Ludwig, 2010; Pham, Jones, Sargeant, Marshall, & Dewey, 2010; Ramphal & Simelane, 2010; Swinnen & Vandemoortele, 2009).

Major campaigns have targeted the food industry in terms of education programs and evaluation of appropriate behaviours (Anding, Boleman, & Thompson, 2007; Bas, Ersun, & Kivanc, 2006; Hillers, 1997; Hillers et al., 2003; Kendall et al., 2004; Parker, 2006). However, less research has focused on the level of importance consumers place upon aspects of safety and quality concerns in the food supply chain. These aspects, together with cost of the product and willingness to pay (Batte, Hooker, Haab, & Beaverson, 2006; Feng, Jian, Weisong, Zetian, & Xiaoshuan, 2009), nutritional concerns (da Fonseca & Salay, 2008; Savov & Kouzmanov, 2009), and taste and appearance (Savov & Kouzmanov, 2009) determine purchasing behaviours and ultimately influence business success (Domenech, Escriche, & Martorell, 2007; de Jonge, Frewer, & van Trijp, 2004). Knowledge of who places importance on these concerns and who is lacking confidence in aspects of the food chain are vital to develop appropriate educational campaigns, increase consumer confidence and address potential public health concerns.

The Australian Research Council (ARC), through the ARC Discovery Scheme, provided funding for a collaborative study between the Flinders University of South Australia and the South Australian Department of Health, looking at "Food and Trust". This study was primarily concerned with identifying the nature and level of consumer trust in the Australian food supply and details on previous analyses are available (Henderson, Coveney, & Ward, 2010; Henderson, Ward, Coveney, & Meyer, 2010). However, the study also provided a unique opportunity to assess safety and quality issues against a broad range of demographic variables so that detailed targeting can be provided to address this growing public health concern about food safety. This research focuses specifically on the broad food supply system although it is acknowledged that consumer's individual home-based food safety behaviours such as appropriate cooking, storing and hygiene are also important (Medeiros et al., 2004; Redmond & Griffith, 2006).

2. Method

Households in Australia with a telephone connected and the telephone number listed in the Australian Electronic White Pages were eligible for random selection in the sample for this study. All selected households were sent an approach letter on Flinders University of South Australia letterhead, and this detailed the purpose of the study and advised that the household would be receiving a telephone call for an interview. The purpose and benefits of the research, the format of the survey, and how more information could be obtained was described in an information sheet accompanying the letter. In order to test question formats and sequence, and to assess survey procedures, a pilot study of $n = 52$ randomly selected households was conducted prior to the main survey. The person, aged 18 years or over, who was last to have a birthday, was randomly selected within each contacted household to complete the survey.

Professional interviewers from a contracted agency conducted the study using Computer Assisted Telephone Interview (CATI) methodology from October to December 2009. This methodology allows immediate entry of data from the interviewer's questionnaire screen to the computer database. A minimum of 10 call-backs were made to telephone numbers selected, to interview household members and different times of the day or evening were scheduled for each call-back. Non-contactable or responding persons were not replaced with other respondents. Interviews could be rescheduled to a time suitable for the respondent if they were not available to be interviewed straight away. Interviews took an average of 14.5 min to complete, and 10% of each interviewer's work was validated by the interviewer's supervisor for quality purposes.

Of the initial sample of 4100, a sample loss of 1408 occurred due to non-connected numbers (1060), non-residential numbers (135), and fax/modem connections (74), leaving 2692 eligible telephone numbers. After refusals, terminated interviews, non-contactable households, deaths, unavailable respondents and respondents who could not speak English, 1109 interviews were completed. This generated an overall sample response rate of 41.2%. As samples such as these may be disproportionate with respect to the population of interest, weighting was used to compensate for differential non-response and correct unequal sample inclusion probabilities. In order to reflect the Australian population structure 18 years and over, the data were weighted by age and sex reflecting the Australian Bureau of Statistics 2007 Estimated Residential Population (ABS, 2007).

Of particular relevance to the current investigation were eight survey items addressing the importance placed upon several food safety and quality concerns by the respondents when purchasing food. All relevant survey items where framed as follows: 'When buying food, how important to you are the following safety and quality concerns?' Survey items included:

- The food producer maintains control of hygiene
- The shop or retailer maintains control of hygiene
- You know the staff personally
- You know where the food originates from
- Local hygiene inspectors visit the place regularly
- Australian authorities enforce strict hygienic standards for food
- You know the shop from previous experience
- The food is labelled with full product information.

Respondents were provided with response options ranging from 'Unimportant', 'Matters a bit', 'Important' and 'Don't know'. Refusal to answer a particular question was recorded as a further response option. Demographic variables included in the present analysis were age, sex, number of people in the household, marital status, work status, education, annual household income, the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Disadvantage (IRSD) (ABS, 2008) as well as the Accessibility/Remoteness Index of Australia (ARIA) (Pink, 2010).

Data were analysed using the statistical software package SPSS version 18.0. For analytical purposes, the outcome variables, i.e. the eight items addressing food safety and quality concerns, were dichotomised. 'Unimportant' and 'Matters a bit' responses were combined to create one level of the outcome variable (Unimportant/Matters a bit), while answers in the form of 'Important' generated the second level. 'Don't know' responses or refusals to answer the question were not included in the present analysis. Bivariate logistic regression analyses were performed to examine the relationship between the individual demographic predictors