

Education involve
food hygiene health
and social care essay



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This study aims to explore and investigate the self-reported behavior of individuals belonging from different cultural backgrounds in the UK about their food handling practices. This study also aims to highlight the different knowledge and beliefs of these multi-cultural individuals regarding food safety. Some of the specific research objectives include: Determining the multi-cultural respondent's knowledge regarding basic food safety principles. Evaluating the respondents beliefs towards food safety Examining the respondent's current food handling practices. As mentioned above that significant gaps exist in the food safety knowledge and awareness amongst individuals of ages and backgrounds. Therefore, understanding the self-reported behavior of multi-cultural individuals would provide new insights of how food is consumed and cooked by individuals from different ethnic background, as UK is a highly cosmopolitan country, therefore this study would prove to be a useful guide for students, academicians, food experts and health agencies to refer and observe and help them develop food safety guidelines and educational material targeting different ethnicities, in order to better create awareness of food safety and knowledge in the UK.

Furthermore, there has not been any research done previously upon ethnic minorities self-reported practices and knowledge related to food safety. As stated above, the ethnic minorities form an integral part of British Community, therefore, ensuring that food safety practice are implemented and practiced by all groups in society. Hence, this study would suffice the purposes of increasing one's self knowledge about this particular field of study, but would be beneficial for the sample respondents participating in this research. These respondents could be benefited through self-awareness of their knowledge and ways of dealing with food that could potentially be

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detrimental for their health. Thus, the research questionnaire is designed to incorporate such attributes that would act as a lens for the research participants in gaining self-awareness of their everyday food handling practices. Introduction Food is a critical contributor to physical well-being and a major source of pleasure and stress (el wrzesniewski 1999), to date major theoretical and practical development in food safety management are carried out yet food borne illnesses are still an increasing global public health concern both in developed and developing countries (et al WHO 2007). Most people link food borne diseases to the consumer knowledge and attitudes, as different attitudes will lead to behavior that might increase the safety of food. (et al Khanona 2003). Food borne illness is a direct result to the manner in which people prepare their local meals and this is an outcome of the lack of food safety knowledge in the UK. Food can become contaminated in different and various ways and it can occur at any part in time between farm and the dining table, but the main source of organisms could be an animal's gastrointestinal tract, this could contaminate the animal's carcass during slaughter, and if these carcasses are not thoroughly cooked they could simply transmit to humans (et al Andrea j 2011). Similarly, Kennedy et al (2005) comments that many food may acquire contamination at any stage of food production, its processing, packaging, retail and supply chain functions. This leads to high risk of individual contracting the illness and increased societal costs in terms of loss of productivity, pressure upon public and private health resources and other relevant societal costs. Hence for these reasons alone, legislative, industrial and public health measures must be provisioned in order to establish and maintain effective control and surveillance of the food chain. These latter measures must also be

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accompanied by safe food shopping techniques and methods, adequate techniques of preparing and cooking food domestically. In addition, with a busy lifestyle and intensely occupied social life, more and more individuals prefer eating out their meals in restaurants and café's where the food hygiene factor is highly negligible, thus, inadvertently leading hundreds and thousands of individuals to consume unhygienic food made from questionable resources and methods. There are around 250 known food borne illnesses (et al FSA 2011) most of those illnesses are as mentioned above caused by bacteria's and viruses, Some bacteria cause more serious illness than others, but only nine main ones are the reason behind the majority of cases those are:

Campylobacter jejuni

Clostridium botulinum

Clostridium perfringens

Escherichia coli (E. coli)

Salmonella (over 1600 types)

Streptococcus A

Listeria monocytogenes

Shigella (over 30 types)

Staphylococcus aureus.

Although an assessment of the number of food borne diseases are not clearly recognised, as many people with different cases don't seek medical assistance for the symptoms they experience but the food organisation CDC (centres of disease control and prevention) mentioned the following statistics

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which are very important to draw attention into. It's estimated that each year in the UK around a million people suffers one form or another food borne diseases, around 20, 000 people get hospital treatment and around 500 deaths are associated by it. (food. gov. uk). Food borne diseases statistics has shown a great reduction since 1992 to 2010 according the number obtained from the food standard agency. The food standard agency followed specific strategic objectives to reduce the cases by the 2015 and this is by making sure that consumers will have better understanding on how to store food safely and how to follow the best practise. To prevent most of these illness which as shown in the statistics above might be causing a major problem because those diseases will affect most of us at some point in our lives yet controlling it or making it minimise is actually in our hands. Home hygiene plays vital role in controlling the spread of it. Few steps which can be carried out by every consumer and therefore can have a great impact in each individual's health could include: proper hand washing before, during and after the preparations of food, separation of raw and cooked food, making sure food is cooked for a certain length of time using the right temperature and also storing food at the most appropriate temperature (et al daniels 1998). Hence, with the details specified above it can be assessed that consumers need for food safety is greatly increasing but the level of food safety knowledge or education remains extremely low, which ultimately results in numerous health problems (Kang et al, 2010). In order to find out how different people think about this topic I planned to carry out a questionnaire which will give me brief ideas of how different people would react to the importance of food hygiene , and this questionnaire also would help me understand how different attitudes and knowledge can actually

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make a big difference. I have passed my questionnaire to minority charities staff, women who attended women international day event and they were from different ethnic backgrounds, and finally to the international students at Uwic university. How all this was carried out, the method I followed and what results have I obtained will be shown further down

Methodology

Purpose

Primarily for the purposes of performing a research on Consumer food safety extensive questionnaire was established (refer to appendix). Various explicit methods regarding finding crucial element from books, journals, newspapers and internet articles were used to aid with the process of attaining accurate, reliable results Additionally. The vast majority of past research studies on consumer food safety 75% were survey base, in my research a questionnaire was used, and the results obtained varied but the most common conclusion was the consumer knowledge is the only way many of these different food borne illnesses could be avoided. This questionnaire which has been given ethics approval by the school research Ethics Committee at Cardiff Metropolitan University will deliver an overall idea on how different people think about food safety and how can the knowledge they have affects the chances of them being more prone to food borne illness.

Participants

The questionnaire was handed over to different people to see what different view and ideas and knowledge they will have and therefore this will show can different consumers contribute to food borne illnesses and what actually

leads to it. The questionnaire was handed over to people from different ethnicity background such as Asians, Africans, and mixed background people and all what they hand in common was the fact that none of them had any sort of formal food hygiene training. A questionnaire consists of two sections, section 1: Cross contamination, Section 2 Hand washing and drying. Each section included about 11 questions for the consumers to answer it begins with demographic characteristic questions such as sex, age and marital status. the whole questions and can take up to ten minutes to complete. To continue(groups received the questionnaire where are they exactly located / number

Discussion: Meer and Misner (2000) carried out a US survey of 299 participants which consistent mainly of women. The survey highlighted that education in food safety was associated with behaviours. Similar study by Brennan et al (2007) in an Irish survey of 1000 high risk participants found that having a home economics course completed results in a better food safety behaviour. A study carried out by Redmond and Griffith (2003) evaluates that knowledge, attitudes, intentions and self-reported practices did not correspond to observed behaviours. " 89% report correct use of utensils but only 47% did when observed". The study illustrates that although all the knowledge of a participant is not always translated into practice, there is room for improvement which can influence and motivate people to change their behaviour. Pail, Cates and Morales (2005) reported the findings of safe handling practices on people with a higher education level than a high school level. This is also seen in the 54 participants that had completed the food safety questionnaire (60% + had a graduate or post graduate level education). Z Gesundh Wiss. (2012) reported on the food safety at home of 1, 000 participants in Italy. This illustrated that there was

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insufficient knowledge on foodborne diseases and pathogens. In addition, families with children, pregnant women and elderly are at high risk of food safety errors caused due to lack of correct use of food hygiene in food preparation and storage. Similar study by Nan Lv, Katherine L. Cason (2004) on 399 Chinese Americans. It showed that 83.3% of participants leave food to cool at room temperature before refrigerating them. There are many other studies carried out previously on food safety and knowledge (conducted in United Kingdom, Northern Ireland and United States), however, none of these studies have provided a research on the similarities and differences of different ethnic groups.

Data Analysis Once the questionnaires were returned from the participants, the results were coded in order to make the entry into SPSS (IBM SPSS statistics 19, IBM Corporation, New York) software simpler (see Appendix: Questionnaire Bands Used in SPSS). Since the questions are categorical, a cross contamination score and hand washing and drying score were created. These 2 scores were calculated using the participants' answers. If the answer is correct, the participant scores the highest point depending on the number of choices given for each given. For instance, if a question with 3 Likert-scale choices (Agree, Neutral, Disagree) has the correct answer 'Agree', then the participant that answered correctly will receive 3 points; if the participant chose 'Neutral' then he/she would get 2 points, 'Disagree' 1 point. Hence, the higher the score, the more knowledge the participant has on food safety. See Appendix I. Demographic questions were described using frequencies and percentages, since the data was nominal and ordinal level data. For a pictorial view of the demographics, bar graphs was used. Statistical analyses were used to test whether ethnic groups vary in food knowledge and practices. An alpha level of less than 0.

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05 was used to determine significance. Multivariate analyses (MANOVA), (Nan Lv, M. S. & Katherine L. Cason, 2004) was used to compare the means of the different ethnic groups (Asian, Black and Mixed) with the participant's knowledge on cross contamination and hand washing and drying. In addition, MANOVA was used to examine the respondents' current food handling practices. Chi-squared (χ^2) test was used to evaluate the respondents' beliefs towards food safety. Pearson's R Correlation method was used to test the relationship between cross contamination score and hand washing and drying score. (Z Gesundh Wiss, 2012, Nan Lv, M. S. & Katherine L. Cason, 2004) Results The questionnaire was handed to 60 participants, of which 54 had completed and returned the questionnaire, 6 refused to complete it. See Appendix II for entire Descriptive Statistics.

Statistics

Age Gender marital status educational profile ethnicity Education involve food hygiene Work in food related industry Prepare food N Valid 54 54 54 54 54 54 54 Missing 6 6 6 6 6 6 6 Table 1: Statistics to show the number of participants that had taken part in this questionnaire 65% of participants taken part in this questionnaire were female. Figure 1: Bar graph to show the distribution of Gender (%) Also, majority of the participants (55%) were in the age range of 20-35 years old. Figure 2: Bar graph to show the distribution of Age (%) Most of the participants were graduates (41.7%). Figure 3: Bar graph to show the distribution of Education Level (%) There were three main ethnic groups taken into consideration in this analysis: Asian, Black and Mixed respectively. From the 54 participants, 48.3% were of Asian ethnic origin, 33.3% Black and 8.3% Mixed. Figure 4: Bar graph to

show the distribution of Ethnicity (%) Most of the participants have had no education involving food hygiene (58.3%), 83.3% of participants have not worked in food related industries. Furthermore, 70% of the participants prepare food once a day.

Education involve food hygiene

Frequency Percent Valid Percent Cumulative Percent Valid Yes 19 31.7 35.2 35.2
2 No 35 58.3 64.8 100.0
Total 54 90.0 100.0
Missing System 6 10.0
Total 60 100.0

Table 2: Distribution of participants – Education involve food hygiene

Work in food related industry

Frequency Percent Valid Percent Cumulative Percent Valid Yes 46 77.8 47.4
4 No 50 83.9 92.6
Total 54 90.0 100.0
Missing System 6 10.0
Total 60 100.0

Table 3: Distribution of participants – Work in food related hygiene

Prepare food

Frequency Percent Valid Percent Cumulative Percent Valid Once a day 42 70.0 77.8
77.8
8 Once a week 12 20.0 22.2
100.0
Total 54 90.0 100.0
Missing System 6 10.0
Total 60 100.0

Table 4: Distribution of participants –

Preparation of food Correlation method was used to determine if there is an association between the cross contamination score and hand washing and drying score. Figure 5: Correlation between Cross Contamination score and hand washing and drying score A weak positive correlation ($R^2 = 0.108$) is present between the two variables. This indicates that participants that have knowledge on cross contamination are also knowledgeable on the hand washing and drying habits. Using Pearson's R Correlation method for parametric analysis (See Appendix VI.):

Correlations

cross contamination score and hand washing and drying score. Pearson Correlation = 0.328* (2-tailed), $p = 0.015$, $N = 54$. Correlation is significant at the 0.05 level (2-tailed). Table 5: Pearson's R Correlation between handwashing and drying score and cross contamination score. There is a significant, weak correlation between handwashing and drying score and cross contamination score ($r = 0.328$, $N = 54$, $P = 0.015$) indicating that knowledge and practices of handwashing habits are related to knowledge and practice of cross contamination issues. This does suggest that education in basic food hygiene practices does affect a combination of knowledge and practice. Using Chi-squared test on all the cross contamination and hand washing and drying questions for the different ethnic groups found the following results. All questions showed that the correlation between ethnic groups and the question answered is statistically insignificant, therefore concluding that there is not enough evidence to prove that the ethnic groups have different knowledge and behaviours in food safety and practices. However, one question showed that there is a statistical significant difference between the ethnic groups. Participants that had answered the question 'Do you feel your way of handling food leaves it safe for others to eat?' (Pearson's R correlation = -0.293, p -value = 0.040). The bar graph below shows that participants from Black ethnic group strongly believe that their way of handling food is safe. See Appendix VII.

Figure 6: Bar graph between ethnic groups and whether they feel their way of handling food is safe for others to eat. To determine the multi-cultural respondent's knowledge regarding basic food safety principles a statistical

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analysis test called MANOVA (Multivariate analysis) was used. This multivariate analysis compares the means of the different ethnic groups (in this case, Asian, Black and Mixed ethnic groups respectively) and the participants' knowledge on cross contamination and hand washing and drying. See Appendix III.

Multivariate Testsc

EffectValueFHypothesis dfError dfSig. InterceptPillai's Trace. 993138. 129a23. 00022. 000. 000Wilks' Lambda. 007138. 129a23. 00022. 000. 000Hotelling's Trace144. 408138. 129a23. 00022. 000. 000Roy's Largest Root144. 408138. 129a23. 00022. 000. 000ethnicityPillai's Trace1. 0301. 06246. 00046. 000. 419Wilks' Lambda. 2181. 091a46. 00044. 000. 387Hotelling's Trace2. 4441. 11646. 00042. 000. 361Roy's Largest Root1. 8181. 818b23. 00023. 000. 080a. Exact statisticb. The statistic is an upper bound on F that yields a lower bound on the significance level. c. Design: Intercept + ethnicityTable 6: MANOVA results using on all cross contamination and hand washing and drying questionsFrom the table above, the F-Test has a significance of 0. 419 which is greater than 0. 05, therefore there is insufficient information available to reject the null hypothesis. There is no significant difference between in knowledge and ethnic group. All participants regardless of the ethnic group they belong to have the same amount of knowledge on cross contamination and hand washing and drying. To evaluate the respondents' beliefs towards food safety, Chi-squared (χ^2) test was used. See Appendix IV. Each Cross contamination question was applied chi-square test. This showed that at 0. 05 significance level, none of the cross contamination questions are statistically significant. Therefore, we

can conclude that all ethnic groups have the same amount of knowledge on each cross contamination question. Pearson R-square correlation test on each cross contamination questions showed the following results:

Correlation on each Cross Contamination Questions

Cross Contamination Questions

Pearson's R

Exact Sig.

When do you think food contamination occurs-0.1870.208
Food borne pathogens0.0270.916
May lead to food poisoning-0.0810.663
spreading of bacteria-0.0081
Use separate chopping board-0.1050.514
Do you think having a separate chopping board is important-0.2310.113
Most prominent reason for cross contamination-0.1550.3
Most effective way to avoid cross contamination0.1240.433
try to avoid cross contamination-0.0390.876
ensure food safety it is important that consumer should be aware of how to improve cross contamination0.0860.674
There is weak or no correlation between the cross contamination questions and the ethnicity groups. Chi-square test has assumptions to be met before using it on sample data. These assumptions include: sample was randomly drawn from the population, values for each question are mutually exclusive and the minimum expected value must be 5. However, the last assumption was not met which suggests that chi-square test cannot be used for this sample data. To examine the respondents' current food handling practices, MANOVA test was used. See Appendix V.

Multivariate Testsc

Effect Value F Hypothesis df Error df Sig. Intercept Pillai's Trace. 986203. 966a13. 00037. 000. 000 Wilks' Lambda. 014203. 966a13. 00037. 000. 000 Hotelling's Trace 71. 664203. 966a13. 00037. 000. 000 Roy's Largest Root 71. 664203. 966a13. 00037. 000. 000 ethnicity Pillai's Trace. 7321. 68726. 00076. 000. 041 Wilks' Lambda. 3571. 919a26. 00074. 000. 016 Hotelling's Trace 1. 5542. 15126. 00072. 000. 006 Roy's Largest Root 1. 3724. 011b13. 00038. 000. 000a. Exact statistic b. The statistic is an upper bound on F that yields a lower bound on the significance level. c. Design: Intercept + ethnicity

A multivariate ANOVA (MANOVA) was performed on the handwashing question responses from the three different ethnic groups (Asian, Black and 'other') and indicated a statistically significant difference between the three groups ($n = 54$, $P = 0.041$). Post hoc analysis revealed these differences were due to significant differences in the responses to how do you wash hands ($F = 4.828$, $df = 2, 49$, $P = 0.012$), how often do you act upon this practice of washing equipment ($F = 27.222$, $df = 2, 49$, $P = 0.000$), after preparing food, do you clean your countertops with warm water and soap? ($F = 6.275$, $df = 2, 49$, $P = 0.004$), do you dry your hands after washing dishes? ($F = 6.790$, $df = 2, 49$, $P = 0.002$), do you feel your way of handling food leaves it safe for others to eat? ($F = 29.668$, $df = 2, 49$, $P = 0.000$), and is it necessary to wash your hands after sneezing, coughing and after taking out the trash? ($F = 3.745$, $df = 2, 49$, $P = 0.031$). See Appendix V (Levene's Test).

Conclusion From the statistical analyses carried out on the three ethnic groups, it can be concluded that there is insufficient evidence to suggest that food safety and knowledge between ethnic minority groups. However, a weak correlation between handwashing score and cross contamination score

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indicates that knowledge and practices of handwashing habits are related to knowledge and practice of cross contamination issues. Therefore, education in basic food hygiene practices does affect a combination of knowledge and practice. Recommendation: This study only focusses on Asian, black and mixed groups. Further study could possibly include comparison between british/Caucasian ethnicity. Also, the questionnaire was only distributed to a small sample of 60 people. For further analyses, a larger sample will be beneficial for this project. Referencing: Z Gesundh Wiss. February 2012. Food safety at home: knowledge and practices of consumers. [ONLINE] Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3268974/>. [Accessed 20 April 2013]. Nan Lv, Katherine L. Cason. March 2004. FFCI :: Food Safety Related Practices and Acculturation of First Generation Chinese Americans in Pennsylvania. [ONLINE] Available at: <http://ncsu.edu/ffci/publications/2004/v9-n1-2004-march/ar-1-food.php>. [Accessed 20 April 2013].