Research Journal of Agriculture and Rural Development
Volume 13 Issue 2, April-June 2025
ISSN: 2995-4126
Impact Factor: 6.09
https://kloverjournals.org/index.php/ard

FOOD SAFETY AT HOME: AN IN-DEPTH LOOK AT CONSUMER PRACTICES

John Michael Anderson and Sarah Elizabeth Johnson
Department of Agriculture, Alcorn State University, Mississippi
DOI:https://doi.org/10.5281/zenodo.15518072

Abstract: Ensuring food safety is paramount for public health, socio-economic stability, and global trade. Despite growing concerns about food safety, Southwest Mississippi lacks comprehensive research on foodborne illnesses. This knowledge gap hinders the development of effective policies to prevent contamination. To predict consumer behavior, it is crucial to understand how consumers perceive risks and benefits related to food safety. Foodborne diseases, resulting from the consumption of contaminated food or water, pose a significant public health threat in the United States. This study aims to address this gap by investigating consumer perceptions of food safety issues in Southwest Mississippi. The findings will contribute to a more profound understanding of food safety concerns and help in the formulation and implementation of targeted policies. Enhancing food safety measures is imperative not only for safeguarding public health but also for sustaining socio-economic stability and facilitating international trade.

Keywords: Food Safety, Foodborne Illness, Consumer Perception, Southwest Mississippi, Public Health

Introduction

Food is essential for both the growth and maintenance of life; therefore, safety should be a top priority. Safe food is important for public health, socio-economic stability and global commerce. Despite the attention given to the subject of food safety and the rising concern for quality issues, research developing a deep understanding of food safety and foodborne illness in Southwest Mississippi is limited. It is vital to understand consumer responses to various food safety issues for the development and implementation of effective policies to prevent contamination. This means that the behavior of consumers in relation to food safety issues can only be properly predicted if there is systematic understanding of the way in which consumers perceive the risks and benefits associated with different food safety and quality issues. Foodborne illnesses or foodborne diseases which can be defined as “any disease or infections caused by or believed to be caused by consuming food or water,” are an important public health burden in the United States.

According to the Center for Disease Control estimates (2011), roughly 1 in 6 Americans, or 48 million people, got sick, 128,000 were hospitalized and 3,000 died of foodborne diseases in 2010. Although the number of reported infections has steadily declined, foodborne disease remains a significant problem (CDC, 2005). This problem is intensified by the increase of at-risk populations, such as children, elderly people, and people with compromised immune systems. This situation is evident in the United States,

with one-fourth of the population considered to be at increased risk for severe outcomes in the event of foodborne disease (Byrd-Bredbenner et al., 2007).

The objectives of this study are to enhance the awareness of students and other consumers in southwest Mississippi of various aspects of food safety practices, and to develop a curriculum to promote food safety practices among students, other consumers and businesses.

Food safety, including foodborne illnesses has been a major concern for decades. While the food supply in the United States is one of the safest in the world, the Center of Disease Control and Prevention (CDC), estimates that 76 million people get sick, more than 325,000 are hospitalized and 5,000 deaths occur annually from foodborne illnesses, and may contribute to long-term disease in more than one million Americans (Mead et al, 2000). Food safety is of greater importance now than it has ever been. Business transactions, international trade, retail pressure and the ever-increasing consumer demands dictate that safe manufacturing, retail, and transportation of food from sources to dinner plates is in place. Preventing foodborne illnesses and deaths remains a major public health challenge.

Although food safety involves physical, chemical, and microbial causes, recent trends have shown microbial defects; especially pathogenic bacteria have been a major problem in the food industry and have affected the industry greatly. To many consumers, safe foods mean that there will be no danger from pathogenic microorganisms, naturally occurring toxins and other potentially harmful chemicals which may be deliberately added to foods. The economic impact of this problem is considerable, with an estimated $420 billion spent on direct medical costs and $152 billion attributed to lost productivity annually (Pew Health Group, 2010).

Food safety is first and foremost the responsibility of food producers, processors and others throughout the food chain, including consumers. Recent increases in reported outbreak of food related illnesses have prompted the Congress to respond to the public's growing concern over food safety with new legislation supposed to strengthen the food safety system. The Congress actions reflect the common perception that food is becoming less safe (U.S. CDC, 2009). A key question is whether legislation that leads to more regulations and inspections will result in significant improvements in food safety.

Methods

Population Description

Two hundred consumers from selected southwest Mississippi counties participated in the survey. These participants came from diverse socioeconomic backgrounds and were selected using simple random sampling. The random sampling methods was employed because it guaranteed that the sample chosen would be representative of the population, and the researchers wanted everyone in the target population to have the same chance of being selected to participate in the study.

Research Design and Data Analysis

The research design used for the study was descriptive method. In order to meet the study objectives, a two- part questionnaire was designed. Part one was designed to collect demographic data and part two determined the participants' opinion of food safety. The survey participants were asked to rate their level of agreement to statements by using a "true" or "false" ratings.

Research Journal of Agriculture and Rural Development
Volume 13 Issue 2, April-June 2025
ISSN: 2995-4126
Impact Factor: 6.09
https://kloverjournals.org/index.php/ard

The questionnaire was designed as described by Dillman (2000). The instrument was reviewed for
The survey was pilot tested among consumers in the Claiborne county community (N=15). This was done to determine the reliability of the instrument. The pilot survey indicated no problem with the design nor the process to collect information for the study. The demographic information collected from participants included nationality, gender, marital status, age, education level, and income. Data collected were analyzed using the Statistical Package for Social Science (SPSS version 17.0).

Results and Discussions

A total of 200 consumer respondents were administered a face-to-face survey instrument. The researcher received 200 completed surveys for an overall response rate of 100 percent.

The majority of respondents, 131 (65.5 percent) were female, while 69 (34.5 percent) were male. Participants over fifty-five were more likely to participate in the survey. Eighty six (43 percent) of the respondents were married.

Gender

Figure 1A: Gender Information

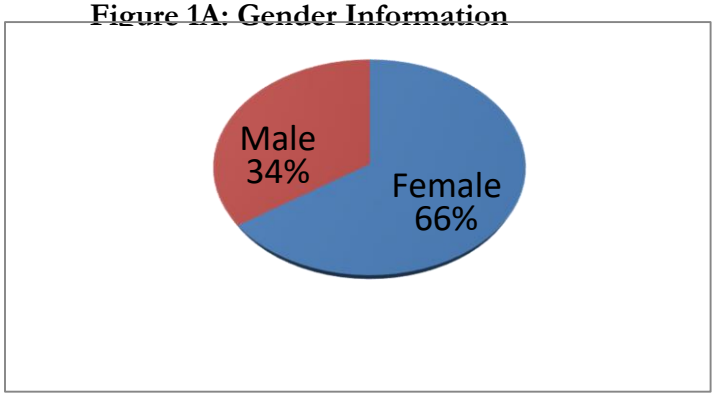
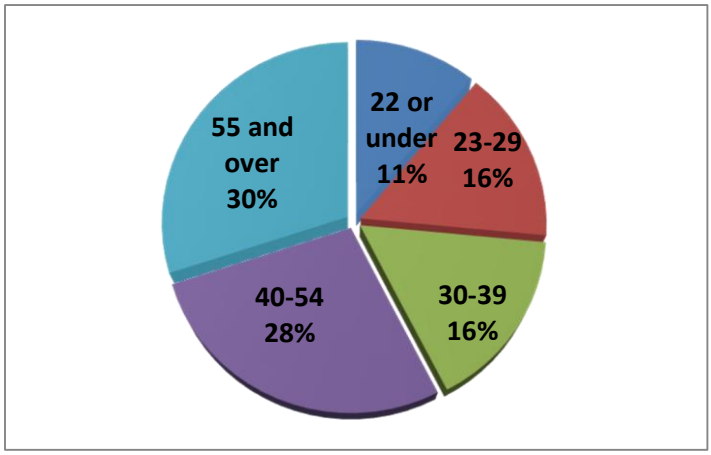


Table 1A. indicates the gender of the participants in the study. Of the 200 participants, 131 (65.5 percent) were female and 69 (34.5 percent) were male.

Figure 1 B: Age Information

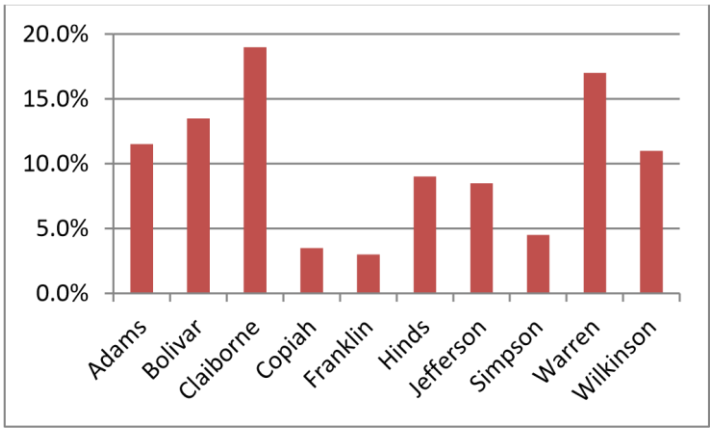


Age

Research Journal of Agriculture and Rural Development
Volume 13 Issue 2, April-June 2025
ISSN: 2995-4126
Impact Factor: 6.09
https://kloverjournals.org/index.php/ard

Table 1B reports the age range of the participants involved in the study. Approximately 22 (11 percent) of participants were 22 years of age or under; 31 (15.5 percent) were between ages 23 and 29; 32 (16 percent) between ages 30 to 39; while 55 (27.5 percent) were 40 to 54; and 60 (30 percent) were 55 years of age and older.

Figure 1 C: County of Residence



County of Residence

Table 1C reports the study participants' county of residence. Of the 200 participants, 23 (11.5 percent) were from Adams County, 26 (13.5 percent) came from
Bolivar County; 38 (19 percent) were from Claiborne County; 7 (3.5 percent) were from Copiah County; from Franklin County, 6 (3.5 percent); from Hinds County, 18 (9 percent); 17 (8.5 percent) came from Jefferson County; 9 (4.5 percent) from Simpson County; 34 (17 percent) were from Warren County; and 22 (11 percent) came from Wilkinson County.

Marital Status

Figure 1 D: Marital Status

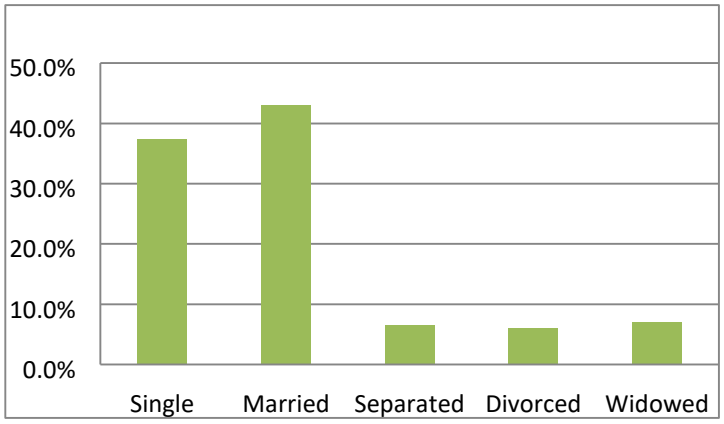
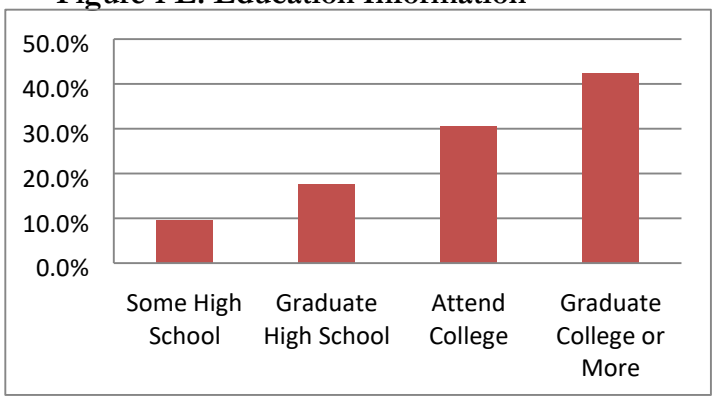


Table 1D gives the marital status of the participants. Of the 200 study participants 75 (37.5 percent) were single; 86 (43 percent) were married; 13 (6.5 percent) were separated; 12 (6 percent) were divorced, and 14 (7 percent) were widowed.

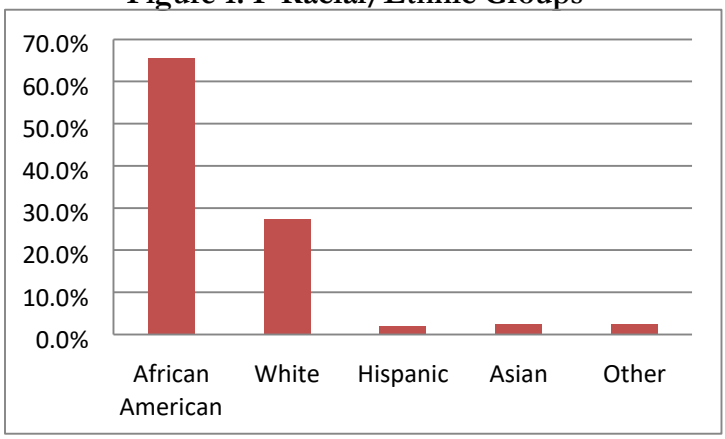
Figure 1 E: Education Information



Education Level

Table 1E shows the highest level of education completed by the study participants. Nineteen (9.5 percent) had some high school education, 35 (17.5 percent) graduated from high school; 61 (30.5 percent) attended college, and 85 (42.5 percent) graduated college or more.

Figure 1: F Racial/Ethnic Groups

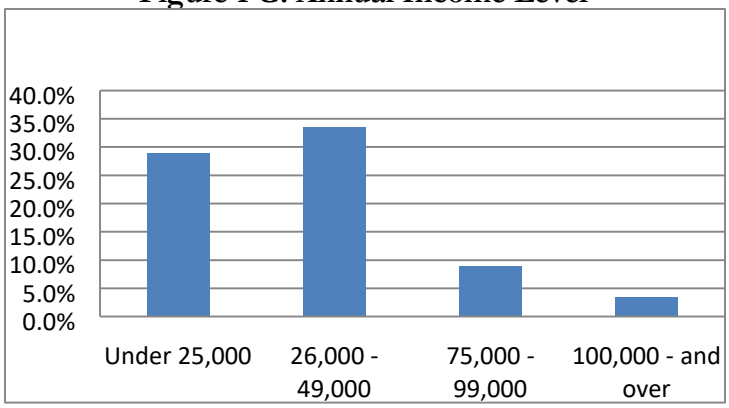


Racial/Ethnic Groups

Table 1 F shows the nationality of participants in the study. One hundred and thirty-one (65.5 percent) of participants were African- American, 55 (27.5 percent) were white, and 14(7 percent) indicated that they were Asian, Hispanic or other

Research Journal of Agriculture and Rural Development
Volume 13 Issue 2, April-June 2025
ISSN: 2995-4126
Impact Factor: 6.09
https://kloverjournals.org/index.php/ard

Figure 1 G: Annual Income Level



Annual Income

Table 1G shows the participants annual income level. Of the 200 participants, 58 (29 percent) indicated that their annual income were under $ 25,000; 67 (33 percent) were between $ 26,000 and $ 49,000; 18 (9 percent) were between $75,000 and $99,000; while 7 (3.5 percent) reported annual income over $100,000.

Table 1 A: Consumer Level of Agreement on Food Safety Practices (N = 200)

Survey Item	**1=True**		**2= False**	
1. **1-10**	**F**	**%**	**F**	**%**
All businesses should have a cleaning schedule	167	83.5	33	16.5
Healthy, clean workers do not carry food poisoning bacteria on their bodies	144	72.056		28.0
Large pots of cooked foods should be cooled quickly by placing into 41.0 smaller, shallower containers	82		118	59.0
Good food hygiene practices and personal cleanliness will minimize 54.0 the risk of food poisoning	10892			46.0
All food not able to be stored in its original packaging should be stored in resealable, durable food grade containers	126	63.074		37.0
If you drop food on the floor, and pick it up in 3 seconds, it is still 81.0 good to eat as long as there is no dirt on it	162		38	19.0

A food business should check that all food received is from a reliable source and is under proper temperature control, protected from contamination and is with the best before or use date	155	77.5	45	22.5
It is safer to use the same pair of gloves all day, than to properly wash and dry your hands when necessary during the day	40	20.0	160	80.0
Aprons and protective clothing can be worn to and from work and on breaks	177	88.0	23	11.5
Eating vegetarian meals will eliminate the risk of food poisoning	30	15.0	170	85.0

Note: 1 = True; 2 = False; F= frequency; % = percent

Participants' levels of agreement as shown in Table 1A

Approximately 167 (83.5 percent) participants reported that it is true that all businesses should have a cleaning schedule, while 33 (16.5 percent) said the issue is not important. When respondents were asked if it is true that healthy, clean foodservice workers do not carry food poisoning bacteria on their bodies, 144 (72 percent) reported that it is true, while 56 (28 percent) reported not true on the issue. Eighty two (41 percent) of participants indicated that it is true that large pots of cooked foods should be cooled quickly by placing into smaller, shallower containers, while 118 (59 percent) indicated false on the issue. More than half of the study respondents, 108 (54 percent) said it is true that good food hygiene practices and personal cleanliness will minimize the risk of food poisoning, and 92 (46 percent) said it is false on the issue. One hundred twenty-six (63 percent) of participants indicated true on the issue that all foods not able to be stored in its original packaging should be stored in resealable, durable food grade containers, while 74 (37 percent) reported false on the issue. Over half of study participants, 162 (81 percent) said it is true that food dropped on the floor, and picked up in three seconds is still good to eat as long as there is no dirt on it, while 38 (19 percent) said it is false on the issue. On the issue that all food businesses should check that all food received is from a reliable source, and that it is under proper temperature control, protected from contamination, and is with the best before or use date, 155 (78 percent) of participants indicated true, while 45 (22.5 percent) indicated that it is false. When asked if it is safer to use the same pair of gloves all day, than to properly wash and dry hands when necessary during the day 160 (80 percent) of the participants indicated false, and 40 (20 percent) indicated true on the issue. A majority of participants 177 (88 percent) reported that it is true that aprons and

protective clothing can be worn to and from work and on break, while only 23 (11.5 percent) reported false on the issue.

On the issue that eating vegetarian meals will eliminate the risk of food poisoning, 170 (85 percent) of participants reported false, while thirty (15 percent) reported that it is true.

Table 1 B: Participants Level of Agreement on Food Safety Practices (n = 200)

Survey Items	**1=True**		**2=False**	
10-20	**F**	**%**	**F**	**%**
Legal actions can be taken against **ANY** food handler for any action where food safety can be compromised	28	14.0	172	86.0
E.Coli is only found in chickens	29	14.5	171	85.5
Food contamination can create enormous social and economic strain on societies	144	72.0	55	27.5
Food safety management is to ensure that *you*, the consumer, is kept safe from foodborne illness and that facilities can pass required health inspection	116	58.00	84	42.0
The most important rule of food service is that employees wash their hands often	119	59.5	81	40.5
Temperature control and time are the most important factors in controlling the growth of bacteria	99	49.5	101	50.5
It is important that the internal temperature of food is taken at least every two hours when holding hot foods for service	55	27.5	145	72.5
Cross contamination is the transfer of harmful substance or micro-organisms to foods from food or nonfood contact surface, such as, hands, utensils or equipment	105	52.5	95	47.5
You can use your nose, eyes, or taste buds to judge the safety of food	90	45.0	110	55.0
Food safety training programs are not really important to the consumer	108	54.0	92	46.0

Note: 1= True; 2= False; F= frequency; % = percent

Participants Level of Agreement as Shown in Table 2B

The majority of participants 172 (86 percent) indicated false on the issue that legal actions could be taken against *any* food handler for any action where food safety can be compromised, while 28 (14 percent) indicated true. When asked if E.Coli is only found in chickens, 171 (85.5 percent) respondents indicated false, while 29 (14.5 percent) indicated true on the issue.

Approximately 144 (72 percent) respondents reported true on the issue that food contamination can create enormous social and economic strain on societies and

55 (27.5 percent) reported false. One hundred and sixteen(58 percent) respondents said that food safety management is to ensure that the consumer is kept safe from foodborne illness and that facilities can pass required health inspections, while 84 (42 percent) indicated false. One hundred and nineteen (59.5 percent) respondents said it is true that the most important rule of food service is that employees wash their hands often and 81 (40.5 percent) said it is false. Roughly 99 (49.5 percent) respondents reported true on the issue that temperature control and time are the most important factors in controlling the growth of bacteria, while 101 (50.5 percent) reported false on the issue. Approximately 145 (72.5 percent) of respondents indicated false on the issue that it is important that the internal temperature of foods should be taken at least every two hours when holding hot foods for service, while 55 (27.5 percent) indicated true. One hundred and five (over 50 percent) respondents reported that it is true that cross contamination is the transfer of harmful substance or micro-organisms to foods from food or nonfood contact surface, such as hands, utensils or equipment, while 95 (47.5 percent) indicated that the issue is false. One hundred ten (55 percent) of participants said it is false that you can use your nose, eyes, or taste bud to judge the safety of food, while 90 (45 percent) said it is true, while 108(roughly 54 percent) participants reported true on the issue that food safety training programs are not really important to the consumer, and 92 (46 percent) reported that the issue is false.

Table 2: **Mean Scores Identified by Consumers on Food Safety Practices (n = 200)**

Survey Items 1-20	**Mean**	**Standard Deviation**
All businesses should have a cleaning schedule	1.22	.52
Healthy clean workers do not carry food poisoning bacteria on their bodies	1.28	.45
Large pots of cooked food should be cooled quickly by placing into smaller, shallower containers	1.59	.49
Good food hygiene practices and personal cleanliness will minimize the risk of food poisoning	.50 1.46	
All food not able to be stored in its original packaging should be stored in resealable, durable food grade containers	1.37	.48
If you drop food on the floor and pick it up in 3 seconds, it is still good to eat as long as there is no dirt on it	1.19	.39

A food business should check that all food received is from a reliable source and is under proper temperature control, protected from contamination and has the best before or after use date	1.23	.42
It is safer to use the same pair of gloves all day, than to properly wash and dry your hands when necessary during the day	1.80	.40
Apron and protective clothing can be worn to and from work and on breaks	1.12	.32
Eating vegetarian meals will eliminate the risk of food poisoning	1.85	.36
Legal actions can be taken against any food handler for any action where food safety can be compromised	1.86	.35
E.Coli is only found in chicken	1.86	.35
Food contamination can create enormous social and economic strain on societies'	1.29	.49
Food safety management is to ensure that you, the consumer is kept safe from foodborne illness and that facilities can pass required health inspection	1.42	.49
The most important rule of food service is that employees wash their hands often	1.41	.49
Temperature control and time are the most important factors in controlling the growth of bacteria	1.51	.50
It is important that the internal temperature of food is taken at least every two hours when holding hot foods for service	1.73	.45
Cross contamination is the transfer of harmful substance or microorganisms to foods from food or nonfood contact surface, such as, hands, utensils or equipment	1.48	.50
You can use your nose, eyes, or taste buds to judge the safety of food	1.55	.50
Food safety training programs are not really important to the consumer	1.54	.50

A majority of consumers identified six issues as **true** (see Table 2A) including (1) aprons and protective clothing can be worn to and from work and on break (F=177, M=1.12), all business should have a cleaning schedule (F=167, M= 1.22), food dropped on the floor and picked up in three seconds is good to eat (F=162, M=1.19), food businesses should check that all foods received is from reliable source, under proper temperature control, protected from contamination, and have best before and after use date (F=155, M=1.23), healthy clean workers do not carry food poisoning bacteria on their bodies (F=144, M=1.28) and (see Table 2B) food contamination can create enormous social and economic strain on societies (F=144, M=1.29).

Conclusions

The survey results provide insight into consumers' knowledge and levels of agreement on food safety issues and practices. It has been suggested that if research of this nature does not involve actual incentives to respondents, they could provide biased responses. This project involved actual incentive, where each participant was given a lanyard as a token of our appreciation for participating in the study. The researchers believe that these findings show that consumers in southwest Mississippi have the basic knowledge of food safety issues and how it plays a crucial role in their food purchasing behavior. It is important to note that even though the contamination of food can occur at any stage of the food production process, a considerable level of foodborne diseases are caused by improper food handling, storage, and preparation in the home or food business establishments. Their responses also indicate that consumers believe that food safety practices should be taken very seriously because it is an important health issue. The most vulnerable to health issues resulting from unsafe food are children, pregnant women, the elderly, and those with compromised immune systems. The economic toll on society from foodborne illness is enormous. A recent study estimated the total economic impact of foodborne illness in the United States to be approximately $ 152 billion annually (Scharff, 2010).

Therefore, emphasis must be placed on the notion that foodborne illness is preventable when proper food hygiene is followed, especially with foods that are at a greater risk for contamination. Study results showed that participants have decided to take the safety of their food seriously in order to avoid foodborne illnesses and remain healthy. The results also indicate that consumers need to be better informed about current issues related to food safety and foodborne illness in order to remain healthy and productive citizens. In order for this to be realized the consumer must have access to accurate safe food handling practice information. Investigators were also provided with insights into southwest Mississippi consumer participants' level of agreement on food safety issues, and that they are aware of some of the issues related to safe food handling practices which leads to good health. It is crucial that emphasis be placed on the prevention of foodborne illnesses, which is quite inexpensive. Also, the economic impact of food safety should not be taken lightly.

Acknowledgement

This study was supported by United States Department of Agriculture, National Institute of Food and Agriculture (USDA-NIFA) Evan Allen Grant Program

References

Byrd-Bredbenner, C., Maurer, J., Wheatley, V., schaffner, D., Bruhn, C., and Blalock, L. (2007). Food safety self-reported behaviors and cognitions of young adults: results of a national study, Journal of Food Protection, 70(8), 1917-1926.

CDC (Center for Disease Control and Prevention, 2009), 'FoodNet-Foodborne Diseases Active Surveillance Network', (2009a) Retrieved August 4, 2013 from: http://www.cdc.gov/FoodNet.

CDC (Center for Disease Control and Prevention, 2005), Preliminary FoodNet Data on the Incidence of Infections with Pathogens Transmitted Commonly Through Foods-10 sites, United States, 2004, Retrieved August 4, 2013 from: http://www.cdc.gov/FoodNet.

Dillman, D.A. (2000). Mail and Internet surveys: The tailored design method. New York, NY: John Wiley & Sons, Inc.

Mead, P.S., L. Slutsker, V. Dietz, L. F. McCaig, J.S. Bresee, C. Shapiro, P.M. Griffin, and R.V. Tauxe. (2000). 'Food-Related Illness and Death in the United States'. Emerging Infectious Diseases, 5: 607-25.

Pew Health Group (March 3, 2010). Foodborne illness costs US $152 billion annually, landmark report estimates. ScienceDaily. Retrieved December 5, 2013, from http://www.sciencedaily.com/releases/2010/03/1003081834.htm

Scharff, R.L., Health Related Costs of Foodborne Illness in the United States, Produce Safety Project, March 2010, Retrieved August 21, 2013 from: http://www.producesafetproject.org/media?id=0009