

Full Length Research

The Association between Consumers' Socioeconomic Factors and Knowledge of Organic Food Products in Huntsville, Alabama: A Pilot Study

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The study investigates the association between consumers' socio-economic factors and knowledge of organic food products in Huntsville Alabama. Findings is expected to assist organic farmers, marketers and food companies to create realistic and moral promotions for the aging population and also to have an overview taking advantage of age breakdown to assure their organization for sustained growth and enhanced performance through continuous improvement. Following the literature review the researchers designed a questionnaire survey for data collection during the last two weeks of January 2017. Purchasers were approached during food shopping in outlets of two retail chains in two different areas of Huntsville, Alabama. Data collected from the questionnaire survey were analyzed with descriptive and spearman rank correlation statistical tools to test the null hypotheses. Findings showed that AGE and EDUL correlated negatively with consumer knowledge of where to buy organic food products ($r = -0.487$, $p < .013$ and $r = -0.434$, $p < .025$), while, belief in the information published about organic advantages (BIPOAD), belief that organic products are healthier (BOPH), and familiar with the terms "organic food" and "organic agriculture" (FTOFOA) correlated positively with consumer ever buy organic food (EBOF) or beverage products (EBOB) ($r = 0.730$, $p < .000$, $r = 0.593$, $p < .012$ and $r = 0.397$, $p < .041$). Thus, a significant association emerged for knowledge about as to where buy organic food products and socio-economic factors. Also, consumers ever buy organic food or beverage products with belief in the information published about organic food advantages and as organic products are healthier. Consumers between the ages 45-64 years need additional information on organic food products. In this way, it will help policy makers, farmers and managers in formulating and implementing strategies to encourage organic food products purchasing.

Keywords: Consumers, Socio-economic Factors, Knowledge of Organic Food Products, Price Premium.

INTRODUCTION

Oluwoye (2008, 2015) reported that several countries around the world are facing the rapid

aging of their populations over the next 40 years, as an irreversible outcome of a sustained period of low

birth rates combined with continued extension in the length of the life span. As migration, except at a massive level, can have only a very minor effect upon the aging of the population our aging future can be predicted with a high degree of certainty. A major concern of American Society today is the aging of its population and the special needs of that aging population. The U.S. Census Bureau describes aging as "a general term which can be defined as a physiological, behavioral, sociological or chronological phenomenon" (p.1). According to the American Bureau of Statistics, age is categorized into three populations: the older population (age 55-64); the elderly (age 65-74); the aged (75+). Thus, all individuals over the age of 55 are considered to be part of the aging population. According to U.S. Census Bureau, in 2010 the median age was 37.2 years and is estimated to be approximately 40 years by 2030, whereas in 2000 it was 35.3 years, revealing a gradual aging population (Wan et al., 2016).

The World Health Organization (WHO) defines health as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity' (WHO, 2012). Furthermore, there are many definitions of healthy aging, a term which is often used interchangeably with terms such as active aging (Bowling, 2008; WHO, 2012), age-dependent or age-progressive decline in intrinsic physiological function (Flatt and Schmidt, 2009; Bronikowski and Flatt, 2010; Fabian and Flatt, 2011). Although there is no universal definition, there is general acceptance that healthy aging involves more than just physical or functional health. While the health system is versed at treating the spillover effect of a vast range of diseases emphasis has not been placed on addressing the root causes of the health issues such as access to healthy food and the quality of life (FWJF Commission, 2014). Poor nutrition and obesity are among the most important health issues facing society today, not only in terms of health, but also health care expenses with estimates of \$147 billion to \$210 billion dollars in avoidable healthcare spending (Cawley et al., 2012; Finkelstein et al., 2009). Several studies have reflected an increasing trend in the rate of obesity among all age groups in the U.S. with nearly 38% of adults who are obese (CDC, 2015; Ogden et al., 2015; Flegal et al., 2016). There are a variety of predictors of obesity including genetic, physical activity, and food consumption.

There are other outcomes of food choice and nutrition that also have an independent effect on health including some types of cancer, cardiovascular disease, and Type-2 diabetes (CDC, 2015).

Obesity has been associated with increasing the likelihood of diabetes, high blood pressure, high levels of blood fats high cholesterol levels, heart disease, stroke, some forms of cancer (Giovanni and Franco 2013), arthritis 538, asthma, kidney disease (Wang et al., 2008), Alzheimer's/dementia and poor health status (Beydoun et al., 2008; Xu et al., 2011). Based on the 2015 Behavioral Risk Factor Surveillance System (BRFSS) annual survey, roughly 25 states reported adult obesity was higher than 30%, followed by 43 states reporting rates higher than 25%. Alabama recorded the second highest rate of obesity (35.6%) in the country (Segal et al., 2016). Additionally, it was reported that Alabama had the third highest rate of diabetes (13.5%) in the nation. Based on the above discussions, food selection is an important consumer behavior with many long-term consequences to the individual in the form of health and longevity and to society in the form of health cost. The demand for organic products is accompanied by the perception of quality, safety and healthy food products.

Literature Review

This section and the keywords perceptions of quality and price premium are extracted from Oluwoye et al., (2017).

Psychological factors that influence an individual's decision when purchasing as the individual's motivations, perceptions, learning and beliefs (Callwood, 2013). Consumer behavior may be defined as the mental, emotional, and physical activities related to purchasing, utilizing, or disposing products and services that satisfy a need (Priest et al., 2013). Attitudes affect intentions; the more desirable the attitude is greater it will and intention to carry out a particular behavior will be (Tarkiainen and Sundqvist, 2009). Tarkiainen and Sundqvist (2009) claim that attitudes are communicated between people and thus, people with positive attitudes towards a product will affect the attitudes of their surrounding people. As a result of this cross over effect, subjective norms will be

seen as a precursor of attitudes in this study. Among the small number of studies that studied the subjective norms related to the purchase of organic food, it was discovered that there is an important relationship between subjective norms and attitudes. Klöckner (2012) explains the complexity of human decision-making with respect to purchasing organic food. Their model framework is outlined with the nested structure of decision and the impact of earlier decisions has on the decisional space of later decisions. Environmental consideration has been suggested as a motivating factor. Ling (2013) evaluated consumers' intent to purchase green product as a means to examining the driving variables that influence consumers' purchase intent. Other studies have indicated the relevance of socio-demographic and cultural factors such as, product quality, price, place of sale, ambience, country of origin, and convenience in purchasing affect purchase decisions of food consumers (Van Waterschoot et al., 2008; Akpinar et al., 2009; Gupta, 2009; Vukasovič, 2013). Shafie and Rennie (2012) suggested that future studies should go for consumer-based approach which is important not only for consumers, but also in terms of responses to changes in market dynamics.

Perception of Quality

Previous literature has suggested that the way consumers perceive the quality of organic food has played a big role in its rapid expansion (Essoussi and Zahaf, 2008). There is significant indication from the literature that taste quality is an influential factor in consumer behavior by providing a measure to justify price premium (Shaw-Hughner et al., 2007). The price premium also has an effect on the consumer perceptions toward the quality of organic products (Harrison, 2009; Shaw-Hughmer, 2007). However, when it comes to food quality, there are serious questions about the ways in which both consumers that purchase it and supermarkets who market and sell it are judging the overall quality of products. This was the experience in the UK with Tesco. When the company experimented with lowering the price of organic products slightly below the price of its conventional food equivalent and there was an extremely low conversion rate. This means customers are likely to purchase organic in that circumstance but they are very unlikely to continue purchasing organic when the price rises

again. Tesco attributes this to customers experiencing organic food and finding they can't tell any difference in terms of quality (Pierce, 2009). Experts (i.e. Claire Harrison) have argued that quality standards for conventional food are part of the reason organic food gained prominence in the first place. Appearance and size standards set by supermarkets necessitated an increasing use of pesticides and other chemicals to meet yield requirements as well as quality standards (Harrison, 2009). Additionally, in July 2009 a landmark report released in the UK raised serious questions about the actual nutritional value of organic food over its conventional competitors. Dangour and colleagues (2009) found that there was actually virtually no nutritional difference in organic food, undermining consumer perceptions about quality.

Price Premium

The price of organic food is clearly likely to play a major part in the purchasing intentions and behavior of consumers. Likely in the form of a barrier due the price premiums of organic produce vs conventional. In fact, the price of organic food has been cited in many articles to be the main obstacle for not buying organic food (Hughner et al., 2007; Shafie and Rennie, 2012). This may be likely to be especially true in times of economic downturn, like those in which we currently find ourselves. One area that has been extensively researched is the willingness to pay (WTP), which has been the focus of several studies. Consumers are for example prepared to at least hypothetically to pay a premium for organic produce, however, they were not willing the pay the steep increase in price compared to conventional produce (Shaw et al., 2007). Tesco's experience with price in the current economic climate has been very interesting. In most stores the shelf space dedicated to organic food has been decreasing due to falling sales. Unsurprisingly the amount of stocked organic food was directly correlated to geographic area, so more affluent areas would stock more organic produce as consumers were more likely to purchase, Tesco's research indicates income and willingness to pay are correlated. They also tried to tactically price in order to shift stock on organics, which manifested low conversion rates with organic which seems to indicate that price is a major factor. Perceived differences is also likely to play a role here however, as consumers may not

see an increased benefit in the produce that is worth the price premium (Pierce, 2009).

Ozguven (2012) studied the motivation factors of consumers to buy organic food products in Izmir. Analysis revealed that consumers preferred organic milk, fruit and vegetables. The results indicated that quality and price were more explanatory factors and had more significant relationship than the other factors.

Trust in Labelling and Marketing

Research suggests one of the more critical factors in understanding consumers' willingness to pay for organic food is an inherent trust in certification and labeling claims made on organic food packaging and promotional material (Mohamed et al., 2012). Consumers are required to deposit a significant amount of trust when purchasing organic food – effectively they are often blindly placing their faith in claims made by producers, marketers and supermarkets because it is exceedingly unlikely that at the point-of-purchase there would be any way of independently verifying organic claims (Bellows et al., 2008).

The results of a number of studies into this issue reveal organic purchasing behavior, as influenced through value; seems to be reflective of low-self transcendence decision making. In a 2008 study investigating motivators behind organic purchasing intentions found that organic foods are generally being purchased by consumers who expect positive consequences for themselves as a result (Arvola et al., 2008). Other studies have also found instances of low transcendence (Saher et al., 2006; Bellows et al., 2008). In addition there are moral measures which have had a more “considerable” role in predicting purchasing intentions. They clearly state that their results lend support to the inclusion of measures “which capture the affective and moral bases of behavior” (Arovla, 2008). For instance, a U.S. study conducted in 2008 asked respondents how much they valued food and how large a role it played in their lives. Questions, such as, “I think about food a lot” and “food is an important part of my family traditions” are what they found was that of those who buy organic food regularly, 45% said they “always cooked” indicating a disproportionate number of organic food buyers cooked regularly over those who don't buy organic” (Bellows et al., 2008). Of those same numbers who buy organic

food regularly 66% were their household regular shoppers, versus 59% as expected” (Bellows et al., 2008). The study found a correlation between certain values and the likelihood of intent to purchase. Research into reasons consumers were willing to pay more for organic food demonstrated that values are increasingly being shown to play a central role in deciding to adopt a certain dietary lifestyle (Krystallis et al., 2008).

Alternatively, the intent to purchase because of values has not always translated into actual purchasing. Studies have shown that 39% of respondents claimed they highly valued “organic production methods.” However, only 13% actually purchased organic products on a regular basis (Bellows et al., 2008). Cinque 2009, argued his experience showed organic purchasing behavior reflected a “trend” (Cinque, 2009) rather than the manifestation of changing consumer values.

The study explores the consumer perceptions toward the purchase behavior of organic food products and the objective of this paper is to investigate and examine consumer's perceptions and understand their knowledge towards organic food products and purchase behavior. Specifically, the objectives of this pilot study were to:

1. Examine the impact of socio-economic factors of respondents on consumer knowledge of where to buy organic food products
2. Understand the respondents belief towards ever buy organic food or beverage products
3. Investigate the association between consumers' socio-economic factors and knowledge of organic food products in Huntsville Alabama.

Hypothesis

Null Hypotheses

Hypothesis 1: There will not be a significant relationship between consumer knowledge of where to buy organic food products and socio-economic factor variables:

- a. Age and
- b. Educational levels.

Hypothesis 2: There will not be a significant relationship between ever buy organic food or beverage products and:

- a. Belief in the information published about organic advantages.
- b. Belief that organic products are healthier.

Table 1. Descriptive Statistics: Mean Respondent's Socio-Economic Factors Results.

	N (Missing System)	Minimum	Maximum	Mean	Std. Deviation
Gender	23	1	2	1.16	0.5
Age	23	2	8	3.87	2.17
Education	23	2	8	6.48	2.15
Household income	22(1)	1	4	2.59	0.91
People in household income	22(1)	1	5	2.91	1.27
Marital Status	22(1)	1	5	2.27	1.61

c. Familiar with the terms “organic food” and “organic agriculture”.

MATERIALS AND METHODS

The research paper goal necessitated the identification of the various factors that influence the purchase of organic food. The literature review was used in the identification of potential factors affecting a consumer's purchasing behavior of organic food products. Following the literature review research phase, the researchers conducted a number of semi structured interviews with industry experts in order to gather qualitative insight into what had been uncovered in the academic literature. To best augment the quantitative, data were gathered from consumers, through the design of questionnaire survey. Data collection took place in January 2017. Purchasers were approached while food shopping in one of three retail chains in two different areas of Huntsville (one outlet per chain) using a structured questionnaire. Overall, 40 people were approached, 23 of which were qualified for sample inclusion in the time frame of the survey (57.5 percent). SPSS IBM Statistics Software v.23 was used for all statistics analysis.

RESULTS AND DISCUSSIONS

The socio-demographic profile of the overall sample is shown in Table 1. The mean of each variable revealed respondents' attitudes towards organic food products. The standard deviation shows the size of the range of answers (fairly high in almost all cases based on these results). This is further reflected by the minimum and maximum answers provided for each variable. With the exception of

gender and household income, the range of answers almost universally shows a complete difference of opinion with answers on polar opposite ends of the scale. The relatively high standard deviation also reflects a divergence of opinion by respondents on most questions, with the possible exception of gender.

Using the collected dataset of organic purchase behavior, the author found the min and max. From the Table 1 above and Table 2 below one can see that the min is simply the lowest observation, while the max is the highest observation. Finding the min and max helps one to understand the total span of our data. The means of each variable in Table 2, revealed that respondents attitudes towards organic food products. The standard deviation shows the size of the range of answers (very low in almost all cases based on these results). This is further reflected by the minimum and maximum answers provided for each variable.

It should be noted in Tables 1 above and 2 below, the missing system suggests that all the subjects did not answer some questions that were included in the organic food purchase database.

Hypothesis 1

There will not be a significant relationship between consumer knowledge of where to buy organic food products and socioeconomic factor variables: 1. Age and 2. Educational levels.

To test the above hypothesis, Spearman correlation r was used. The statistics is used to determine the degree of association between knowledge level and socio-economic variables. The Table 3 below shows the Spearman rho correlation r and the coefficient is found to be significant at one – tailed percent level.

Table 3 presents the coefficient for the selected

Table 2. Mean Results of Respondents Knowledge and Awareness of Organic Food Products Results.

	N(Missing System)	Minimum	Maximum	Mean	Std Deviation
Familiar with term Organic food	21(2)	1	2	1.14	0.359
Place to buy organic food	21(2)	1	2	1.19	0.402
Ever buy Organic food products	21(2)	1	2	1.24	0.436
Believe in Organic products are healthier	21(2)	1	2	1.05	0.218
Believe in information publishing about Organic advantages	21(2)	1	3	1.82	0.958

Table 3. Spearman's rho correlation matrix for knowledge of where to buy organic food products (KBOFP) and socio-economic factors.

	KBOFP	AGE	Education
KBOFP	1.000	-0.487*	-0.434*
		$p=0.000$	$p=0.025$
AGE	-0.487*	1.000	0.522**
	$p=0.013$		$p=0.005$
Education	-0.434*	0.522**	1.000
	$p=0.025$	$p=0.005$	

variables in Table 3 above. The test of significance shows that since the significance is 0.013 and 0.025 which is less than 0.05, the rank correlation is significant at the 5% level for a one-tail test, which suggests that H_0 be rejected in favor of H_1 such that one can conclude that there is a significant negative relationship in the ranking of the marketing organic food products by AGE and KBOFP ($r = -0.487$), and EDUC and KBOFP ($r = -0.434$).

There is an association between age and the respondent consumer's knowledge of where to buy organic food products and also there is an association between the education of the respondents and consumers' knowledge of where to buy organic food products. With that knowledge comes a great deal of trust for the organic published information or label. The consumers trust in organic information or label and highest among age group 15 – 34 years with 43% and 35 – 44 years.

Hypothesis 2

There will not be a significant relationship between ever buy organic food or beverage products and: a) Belief in the information published about organic advantages; b) Belief that organic products are healthier; and c) Familiar with the terms “organic food” and “organic agriculture.” Table 4 presents the coefficient for the selected variables

Of the above hypotheses, 2a and 2c are significant at the 1% level and positively correlated. However, 2b is significant at 5% level and positively correlated, which suggests that H_0 be rejected in favor of H_1 . A significant relationship emerged between the EBOF and BIPOAD ($r = 0.593$, $p < 0.000$) BOPH ($r = 0.397$, $p < 0.041$), FTOFOA ($r = 0.730$, $p < 0.000$). The present results suggest that consumers belief in the information published about organic food products increases consumers' belief in buying organic food or beverage products and also belief in organic food products will have positive impact on consumers' health because they are more aware of the benefits of organic foods, that they place a greater value in knowing how their food was grown and produced and that they are deeply committed to supporting a food system that sustains and nurtures the environment. The current results also indicate that youth consumers display a higher level of satisfaction than the aged.

CONCLUSIONS

The main conclusion that emerged from this pilot

Table 4. Spearman's rho correlation matrix for consumers ever buys organic food products and belief in information and healthier.

	EBOF	BIPOAD	BOPH	FTOFOA
EBOF	1.000	0.593**	0.397*	0.730**
		$p=0.002$	$p=0.041$	$p=0.000$
BIPOAD	0.593**	1.000	0.268	0.387*
	$p=0.002$		$p=0.120$	$p=0.042$
BOPH	0.397*	0.268	1.000	-0.096
	$p=0.041$	$p=0.120$		$p=0.343$
FTOFOA	0.730**	0.387*	-0.096	1.000
	$p=0.000$	$p=0.042$	$p=0.343$	

Note: ** correlation significant at the 0.01 level (1-tailed); *correlation significant at the 0.05 level (1-tailed).

study was that additional knowledge is needed to inform consumers' between the ages of 45-64 years about organic food products. In this way, it will help policy makers, farmers and managers in formulating and implementing strategies to encourage organic food products purchasing.

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REFERENCES

- Akpınar MG, Aykin SM, Sayin C and Ozkan B (2009). The role of demographic variables in purchasing decisions on fresh fruit and vegetables. *J. Food Agric. Environ.*, 7(3and4): 106 – 110.
- Arvola A, Vassallob M, Deanc M, Lampilaa P, Sabab A, Lahteenmakia L, Shepherd R (2008). Predicting intentions to purchase organic food: the role of affective and moral attitudes in the Theory of Planned Behaviour. Research Report. *Appetite*. 50: 443–454.
- Bellows AC and Benjamin O (2008). Understanding Consumer Interest in Organics: Production Values vs. Purchasing Behaviour. *J. Agric. Food Indust. Organ.*, Vol 6.
- Beydoun MA, Beydoun HA and Wang Y (2008). Obesity and central obesity as risk factors for incident dementia and its subtypes: a systematic review and meta-analysis. *Obes. Rev.*, 9(3): 204-218.
- Bowling A (2008). Enhancing later life: How older people perceive active ageing? *Aging and Mental Health*. 12(3): 293-301.
- Bronikowski AM and Flatt T (2010). Aging and its demographic measurement. *Nat. Educ. Knowl.*, 1,3
- Callwood K (2013). Psychological Factors That Influence Consumer Buying Behavior. Retrieved from http://www.ehow.com/list_7599973_psychological-influence-consumer-buying-behavior.html
- Cawley J and Meyerhoefer C (2012). The medical care costs of obesity: an instrumental variables approach. *J. Health Econ.*, 31(1): 219-230.
- CDC (Center for Disease Control) (2015). Childhood Obesity Facts. In Centers for Disease Control and Prevention. <http://www.cdc.gov/healthyschools/obesity/facts.htm>
- CDC (Center for Disease Control) (2015). The Four

- Dimensions of Chronic Disease Prevention: Working Toward Healthy People in Healthy Communities. In Centers for Disease Control and Prevention.
- Cinque S (2009) Interview. (Conducted by Jay Dickieson and Victoria Arkus). 2 August 2009. Plymouth, UK.
- Dangour A, Dodhia S, Hayter A, Aikenhead A, Allen E, Lock K and Uauy R (2009b, 2009). Comparison of composition (nutrients and other substances) of organically and conventionally produced foodstuffs. Report for the Food Standards Agency. Nutrition and Public Health Intervention Research Unit London School of Hygiene and Tropical Medicine. July 2009.
- Essoussi LH and Zahaf M (2008). Decision making process of community organic food consumers: an exploratory study. *J. Consumer Market.*, 25(2): 95-104.
- Fabian D and Flatt T (2011). The evolution of aging. *Nat. Educ. Knowl.*, 2, 9
- FWJF (2014). Commission to Build a Healthier America. Time to Act: Investing in the Health of Our Children and Communities. Princeton, NJ: Robert Wood Johnson Foundation. <http://www.rwjf.org/content/dam/farm/reports/reports/2014/rwjf409002>
- Finkelstein E, Trogdon J, Cohen J and Dietz W (2009). Annual Medical Spending Attributable To Obesity: Payer-And Service-Specific Estimates. Published online before print July 2009, doi: 10.1377/hlthaff.28.5.w822 *Health Affairs* September/October 2009 vol. 28 no. 5 w822-w831.
- Flatt T and Schmidt PS (2009). Integrating evolutionary and molecular genetics of aging. *Biochim. Biophys. Acta* 1790, 951–962. doi:10.1016/j.bbagen.2009.07.010.
- Flegal KM, Kruszon-Moran D and Carroll MD (2016). Trends in obesity among adults in the United States, 2005 to 2014. *JAMA*, 315(21): 284-2291, 2016. <http://jama.jamanetwork.com/article.aspx?articleid=2526639>.
- Giovanni De Pergola and Franco Silvestris (2013). Obesity as a Major Risk Factor for Cancer. *J. Obesity*, vol. 2013, Article ID 291546, 11 pages, 2013. doi:10.1155/2013/291546.
- Gupta KB (2009). Consumer behaviour for food products in India, paper presented in 19th Annual World Symposium of International Food and Agribusiness Management Association, held at Budapest, Hungary (June, 20 – 21) available at https://www.ifama.org/events/conferences/2009/cms/docs/1063_paper.pdf Σθάλμα! Η αναφορά της σπερ-ζύνδεξης δεν είναι έγκυρη. on 23rd November, 2012).
- Harrison C (2009). Interview. (Conducted by Jay Dickieson and Victoria Arkus). 3 August 2009. London, UK
- Hughner RS, Prothero A, McDonagh P and Shultz II CJ (2007). Who Are Organic Food Consumers? A Compilation and Review of Why People Purchase Organic Food. *J. Consumer Behav.*, March.
- Klöckner CA (2012). Should I Buy Organic Food? A Psychological Perspective on Purchase Decisions, Organic Food and Agriculture - New Trends and Developments in the Social Sciences, Dr Matthew Reed (Ed.), ISBN: 978-953-307-764-2,
- Krystallis A, Marco V, George C and Toula P. (2008). "Societal and individualistic drivers as predictors of organic purchasing revealed through a portrait value questionnaire (PVQ)-based inventory." *J. Consumer Behav.*, 7: 164187
- Ling CY (2013). Consumers' purchase intention of green products: an investigation of the drivers and moderating variable, Malaysia.
- Mohamed MA, Chymis A and Shelaby AA (2012). Determinants of organic food consumption in Egypt. *Int. J. Econ. Bus. Modeling*, 3(3): 183-191.
- Ogden CL, Carroll MD, Fryar CD and Flegal KM (2015). Prevalence of obesity among adults and youth: United States, 2011-2014 (pp. 1-8). US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.
- Oluwoye JO, Chembezi DM and Herbert B (2017). Consumer Perception of Organic Food Products and Purchase Behavior of Shopping in Outlets of Retail Chains: A Pilot Study of Huntsville, Alabama. *ASJ: Int. J. Agric. Res. Sustain. and Food Suffic. (IJARSFS)*, September- 4(3) 24 : 165-173.
- Oluwoye JO (2015). Age as a Predictor of Social Acceptance of Nanotechnology and Nano-based Food: A Conceptual Framework published in *American International Journal of Contemporary Research*, Vol 5, No 6, December.
- Oluwoye JO (2008) .A Conceptual Framework of Policy/Actions for Age as a Factor in Predicting Alternative Housing Needs among Non-

- Metropolitan Populations published in the Int. J. Interdiscipl. Soc. Sci., Vol. 3.
- Ozguven N (2012). Organic foods motivation factors for consumers. *Procedia – Soc. and Behav. Sci.*, Vol (62) pp.661-665.
- Pierce D (2009). Interview. (Conducted by Jay Dickieson and Victoria Arkus). 3 August 2009. London, UK.
- Priest J, Carter S and Stat D (2013). *Consumer Behavior*. Edinburgh Business School Press, United Kingdom.
- U.S. Bureau of the Census (1983). *America in Transition : An Aging Society*. Current Population Reports, Series P-23, No 128. Wash. D.C. U.S. Govt. Printing Office.
- Saher M, Marjaana L and Ulla-Kaisa KH (2006). Attitudes toward genetically modified and organic foods. *Research Report. Appetite*. 46. Pp. 324-331.
- Shafie FA and Rennie D (2012). Consumer perceptions towards organic food. *Procedia Soc. Behav. Sci.*, 49. Pp 360–367.
- Shaw-Hughner R, McDonagh Pierre, Andrea P, Clifford J, Shultz II1 CJ and Julie S (2007). Who are organic food customers? *J. Consumer. Behaviour.*, 6. p.p. 94110
- Tarkiainen A and Sundqvist S (2009), Product involvement in organic food consumption: Does ideology meet practice? *Psychol. Market.*, 26. Pp. 844-863.
- Van Waterschoot W, Sinha PK, Van Kenhove P and De Wulf K (2008). Consumer learning and its impact on store format selection. *J. Retailing and Consumer Serv.*, 15(3): 194 – 210.
- Vukasović T (2013). Attitude towards organic meat: an empirical investigation on WestBalkans Countries (WBC) consumers. *World's Poultry Sci. J.*, 69(3): 527-539
- Wan He, Daniel Goodkind, and Paul Kowal (2016). *An Aging World: 2015*. International Population Reports. US Census Bureau. P95/16-1.
- Wang Y, Chen X and Song Y (2008). Association between Obesity and Kidney Disease. *Kidney Int.*, 73(1): 19-33.
- World Health Organization. (2012). About WHO: Definition of Health. [cited 2012 24/01/12]; Available from: <https://apps.who.int/aboutwho/en/definition.html>.
- Xu WL, Atti AR, Gatz M, Pedersen NL, Johansson B and Fratiglioni L (2011). Midlife overweight and obesity increase late-life dementia risk A population-based twin study. *Neurology*, 76(18): 1568-1574.