

Food Choice Motives and Healthy Eating: Assessing Gender differences

Autoria: Simone Velloso Missagia, Solange Riveli de Oliveira, Daniel Carvalho de Rezende

Abstract

Motives and behavior underlying healthy food choice are useful to particularly understand how men and women assess healthy eating. Data was collected from a web-based survey conducted with 309 people (174 female and 135 male respondents). Such individuals were recruited through an offline method at supermarkets and street fairs. The t-test revealed some differences between gender consumption, but it also revealed that both men and women seemed satisfied with their eating habits quality. Logistic regression analysis pointed as the main difference between genders, the way they interpret healthiness as a motive for food choice.

Introduction

With the increasing health consciousness, consumers are adopting a healthy diet more than ever before. This healthiness trend can be noted by the increasing amount of healthy foods available such as low calories products and organic foods.

The growth in the production and consumption of healthy food represents a new scenario in the food sector. Furthermore, the healthy eating issues interests not only manufacturers and retailers but also the governments and health care professionals. According to Withrow and Alter (2011), almost 3% of funds allocated by governments are spent on health care with obese people. Obese individuals also represent 30% higher medical expenses than normal weight people. If other diseases were considered in addition to obesity, these numbers would be even more significant. Food-related behaviors influence both present and future state of health (Figueiredo, Jaimel, & Monteiro, 2008) and can be important to avoid some diseases (Ministério da Saúde, 2005; Figueiredo *et al.*, 2008).

According to Ministério da Saúde (2005)'s data, during the period between 1970 and 2003, mortality rates caused by chronic diseases increased of 34,4%, in 1979, to 48,4%, in 2003. The most common chronic diseases are diabetes, heart diseases, high blood pressure, high cholesterol and others (Michaelidou, Christodoulides, & Torova, 2012).

In Brazil food has an important role for consumers' life. According to IBGE (Instituto Brasileiro de Geografia e Estatística - Geographic and Statistical Brazilian Institute), in 2008 and 2009 expenses with food represented 20% of total expenses of Brazilian's households, within the context it has been configured as the second main expense, being spent on housing on the top of the list.

Among decisions made by consumers, food choices stand as one of the most important ones. In this regard, both motives for food choice and eating habits adopted by consumers are useful for understanding how people behave in relation to healthy food. Bublitz, Peracchio and Block (2010) mentioned that existing research focus on women behavior in terms of food consumption and suggest that future research should examine and compare both men and women in their behavior related to food. In this sense, this article investigated gender differences regarding food consumption patterns, especially in terms of motivations for food choice and actual behavior.

Motives and behavior underlying healthy food choice

Jomori, Proença and Calvo (2008) stated that human food choices are based on many factors that influence the individual decision and not only on the omnivorous condition of man, that is, to be able to eat everything. Connors, Bisogni, Sobal and Devine (2001) believe that the decision making processes related to food include both individual and social factors.

Food has social and cultural functions; it is not only a search for nutrients (Jomori *et al.* 2008; Steenkamp, 1993; Steptoe, Pollard, & Wardle 1995). Moreover, food consumption involves subjective aspects such as emotion (King & Meiselman, 2010), and rational aspects, such as price (French, 2003) and convenience (Botonaki & Mattas, 2010).

According to Steptoe *et al.* (1995), tastes and habits are examples of factors that influence people's decision making at the individual level. Furthermore, it has long been recognized that there are many others factors that influence and may be dominant in food selection. These factors include social interactions, cultural and religious aspects (Kiefer, Rathmanner, & Kunze, 2005)

When making a decision in the food context, consumer is making a food choice. A food choice is the way as people consider and select food and beverages in terms of their acquisition and preparation (Furst, Connors, Carole, & Falk, 1996). In spite of the apparent

simplicity, this process is complex and involves multiple questions: *who eat what, why, when and where*.

Food choices are influenced by the context, consumers' experiences and preferences. People's choices and thus preferences can be affected by the frame and context of the decision making process, since preferences are not stable and sometimes axioms of revealed preference theory, which assume them as unchanging, are violated (Lusk & Briggeman, 2009). An important aspect of consumer behavior in terms of food choice is its dynamism. When facing complex processes, humans tend to simplify the decision making process (Connors *et al.* 2001; Onken, Hastie, & Revelle, 1985). As individuals live new experiences they learn and develop personal strategies. Therefore, people make their future choices based on past experiences (Furst *et al.*, 1996; Köster, 2009).

The implementation of personal strategies aimed at simplifying complex food choices will depend on the comparison of the motives for food choices. Trying to develop a formal set of measures, Steptoe *et al.* (1995) developed a brief questionnaire to assess perceived influences on food selection at the individual level, and identified nine distinct factors: *health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern*. Considering all these factors, consumers tend to negotiate them as a strategy for food choices. This negotiation is made through the balancing and prioritization of the motives for food choices (Connors *et al.*, 2001).

Investigating the impact of motives and barriers on healthy eating intention and behavior, Michaelidou *et al.* (2012) showed that food motives help to predict behavioral intention in terms of multiple food choice contexts. This finding highlights the evidence that factors like time and cost could be unimportant when it comes to adopting a healthy diet.

When it comes to healthy eating some considerations are involved. Basic recommendations include the need to adopt a balanced diet which contains enough portions of vegetables and fruits (Michaelidou *et al.*, 2012; Figueiredo *et al.*, 2008). It is also important that food contains functional properties, without large amounts of fat and sugars (Ministério da Saúde, 2005; Figueiredo *et al.*, 2008). Furthermore, according to the Brazilian guide to promote a healthy diet, a healthy eating should not be universal, after all, foods have individual and collective attributes, social and cultural meanings, affective and behavioral meanings, which can not be ignored. Therefore, food as search of pleasure is also an important approach.

Gender and Food Consumption

According to Preucel and Hodder (1996) food is a way through which people can interact. These kinds of social interactions have taken place for a long time including ancient cultures, especially in terms of gender relations. In the context of food habits, the demographic variable gender presents a major influence on food choice behavior (Ares & Gámbaro, 2007).

Gender differences are influenced by other socio-demographic factors in different countries. These differences may be more consistent among less educated and rural subgroups because of traditional beliefs (Prattala *et al.*, 2006). On the other hand, the differences tend to be lower in developed countries (Ares and Gámbaro, 2007; Prattala *et al.*, 2006).

Gender differences in food consumption are related to social norms and cultural beliefs, like motives and behaviors. Some foods are labeled masculine, some are seen as feminine. As an example, the consumption of meat symbolizes a masculine diet, while the consumption of vegetables and fruits represents a feminine one (Prattala *et al.*, 2006).

Gender-specific differences relate to both nutrient intake and recommendations for the dietary allowances. Men have a higher energy intake, and a higher percentage of the energy in

men's diet is derived from animal products. Men's diet is characterized by meat, bread, alcohol (Kiefer *et al.*, 2005; Prattala *et al.*, 2006). Men consume more fat than women (Bonomo *et al.* 2003). On the other hand, frequency of fruit and vegetable intake is higher among women, Gender has a consistent effect on the consumption of vegetables - women tend to consume vegetables more often (Figueiredo *et al.*, 2008; Kiefer *et al.*, 2005).

Previous research indicates that women have a higher awareness and better knowledge of nutrition than men. For women nutrition frequently plays a central role in their conception of health. Women are more concerned about healthy eating habits (Kiefer *et al.*, 2005; Prattala *et al.*, 2006; Turrell, 1997). Men prefer a traditional diet that is high in fat and meat, whereas women more frequently prefer healthy foods and a low-calories diet. Women are more often affected by problems related to their eating behavior, such as craving for special foods, than men are. Women restrained eating is much more common (Kiefer *et al.*, 2005). Findings of Figueiredo *et al.* (2008) reveal that the fact of women being on diets presents a positive correlation with the intake of fruits and vegetables.

To understand what makes people include healthy products in their diet, it is important to investigate the factors that determine food choices. Several external and internal factors may influence consumers' decision-making processes and the analysis of these aspects provides better understanding of healthy eating.

Method

Study Design

A quantitative study was conducted in the city of Lavras located in the Brazilian state of Minas Gerais. With the purpose of assessing the differences between genders related to motives for food choice and healthy eating, a structured questionnaire was elaborated based in previous studies and in dietary guidelines. To reduce time and costs of the study an online survey method was chosen.

Participants

Total sample size was 309 respondents which were randomly selected in order to achieve balanced age and gender. Such individuals were recruited through an offline method that consisted of making contacts at supermarkets. In those occasions, the objectives of the study were explained and the e-mail address of the consumers was requested.

Data Collection

Data collection was performed during the period between September and December of 2011 via Internet. The questionnaire was self-administered and structured. A link for the online survey was sent via e-mail to the recruited respondents. It consisted of three parts. The first part was related to motives of food choices and the items were inspired by the Food Choice Questionnaire developed by Steptoe *et al.*, (1995). Only the most important motives for food choice were included. The six motives that are more often considered by consumers in their food choices are: healthiness, taste, price, safety, convenience and social interactions (Connors *et al.*, 2001; Furst *et al.*, 1996; Lusk & Briggeman, 2009). For each of the six motives, four items were included in the questionnaire. A 5-point Likert-type scale was used and respondents should evaluate whether each item was very important (5) or not important at all (1) to them or if they agreed or not with the sentences related to motives of food choice.

The second part of the questionnaire was designed to measure healthy eating. In order to measure this complex concept that is healthy eating (Paquette, 2005), recommendations of the World Health Organization (WHO, 2004) and the strategies for eating healthily identified by Falk *et al.* (2001) were transformed in ten sentences and the respondents should score a 5-point Likert-type scale to each one of them. A question of evaluation (ranging from 1 to 10) of one's own diet quality was also included.

The last part of the questionnaire consisted of socio-demographic questions.

Data Analysis

The data obtained through the application of the online questionnaire was coded into SPSS 16.0 format. To evaluate the gender differences in consumer eating behavior, two items were selected for each of the six motives. These two items were the one with the greatest mean difference between genders and the other with the lowest mean difference. In order to understand gender differences in food related behavior, means, mean differences, standard deviations and results of the t-test were analyzed. The same analysis was conducted for the ten items related to healthy eating.

Then, for further explanation of gender differences related to the motives for food choice and healthy eating, logistic regression was conducted following the procedures recommended by Hair, Black, Babin, Anderson and Tathan (2009).

Results and Discussion

Sample characteristics can be observed through the frequency distribution of descriptive information obtained in the study. Table 1 provides socio-demographic characteristics of the sample.

Table 1
Sociodemographic characteristics of the sample.

	% of Total Sample (n=309)
Gender	
Female	56,3
Male	43,7
Age	
< 21 years	10,4
21 – 30	48,5
31 – 40	18,8
41 – 50	14,6
51 – 60	5,8
> 60 years	1,9
Education	
< 8 years	1,3
8 years	1,6
11 years	13,6
> 11 years	27,5
Graduate	17,2
Postgraduate	38,8
Average Income	
≤ R\$1000	26,5

R\$1001-3000	38,2
R\$3001-5000	19,7
R\$5001-7000	8,4
R\$7001-9000	3,9
>R\$9000	3,2

Despite the attempt of balancing the samples regarding genders, a prevalence of women can be observed. It should be noted that the samples were biased towards high education and lower age groups which can be explained by the use of the online survey method.

Gender Differences

To explore the distinct behaviors of men and women regarding food selection, it is important to analyze the values of means, standard deviation, mean differences and significance of the t-test. Table 2 shows these values for two items for each motive for the food choices (healthiness, taste, price, safety, convenience and social interactions). The first item for each motive is the one that had the higher mean difference between male and female. The second item had the opposite status, with the lowest mean difference between genders.

Table 2
Means, Mean Differences, Standard Deviation and t-test Significance for Food Choice Motives.

Motive for Food Choice	Item	Mean		Std. Deviation		Mean Difference	Sig. of t-test
		Female	Male	Female	Male		
Healthiness	Keep me healthy	4.38	4.30	0.74	0.85	0.083	0.367
	Are good for my teeth/skin/hair/nails	4.01	3.58	1.00	1.28	0.428	0.002
Taste	Are tasty	4.44	4.48	0.72	0.71	-0.039	0.637
	I only eat what I like.	3.48	3.67	1.32	1.16	-0.197	0.165
Price	Are cheap	3.51	3.53	0.96	1.14	-0.014	0.906
	I compare prices before buying food products.	3.79	3.30	1.30	1.40	0.484	0.002
Safety	I like to know if the food that I eat was prepared with hygiene.	4.30	4.25	0.96	0.95	0.047	0.669
	Do not contain chemical additives	3.68	3.54	1.13	1.33	0.137	0.337
Convenience	It's easy to find in supermarkets	3.94	3.93	0.93	1.00	0.011	0.921
	Don't take time to prepare	3.17	3.04	1.22	1.22	0.128	0.361
Social Interactions	In special occasions I like to celebrate having lunch or dinner with people I like.	4.44	4.25	0.93	0.98	0.185	0.091

I enjoy having company during my meals.	4.09	3.76	1.09	1.06	0.331	0.008
---	------	------	------	------	-------	-------

All means are above the neutral value of 3, what indicates that respondents tend to give high importance to the six motives for food choice.

The significant difference between men and women when considering the benefits of food to their teeth/skin/hair/nails reinforces the findings of Turrell (1997) that reported that women had a heightened concern about their physical and personal appearance than men. On the other hand, both men and women look for food that keeps them healthy.

Considering taste, even the greatest mean difference between genders was not significant, supporting the idea that men and women consider taste similarly in their food choices. This fact can be due to the high importance of taste as a motive for food choices for both genders, as stated by Glanz, Basil, Maibach, Goldberg and Snyder (1998).

Price as a motive for food choice is important for both genders, but only women compare the prices of food products before buying them. This could be explained by the value given by men to their time what could lead them to avoid spending it on price-comparison shopping (Marmorstein *et al.* 1992).

Food safety is a major issue nowadays. There were no significant differences between men and women regarding concern with food hygiene and presence of additives. That finding contrasts with that of Miles *et al.* (2004) who observed distinct behavior between men and women when dealing with food safety issues. But the high means of both genders supports the idea that the general level of concern with food safety has increased what may be because of the awareness of recent foodborne illness outbreaks (Brewer and Rojas, 2008).

Consumers have less time to prepare their food and trying to reduce their efforts in food preparation they often opt for convenience products. In this study, men and women had similar views over convenience as a motive for food choices. That strengthens the statement of Scholderer and Grunert (2005) who believe that demographics are not the only aspect that drives the consumption of convenience products.

When social interactions are considered, women seem to give more importance to this aspect of food and eating than men. That could help explaining the high susceptibility of women to modify their eating behavior when accompanied (Hermans, Larsen, Herman, & Engels 2009; Robinson, Tobias, Shaw, Freeman, & Higgs, 2011).

The same analysis can be done for healthy eating. The values of means, standard deviation, mean differences and significance of the t-test for the ten items related to healthy eating are shown in Table 3 below.

Table 3
Means, Mean Differences, Standard Deviation and t-test Significance for Healthy Eating.

Item	Mean		Std. Deviation		Mean Difference	Significance of t-test
	Female	Male	Female	Male		
I try to eat smaller portions.	3.40	3.00	1.07	0.94	0.402	0.001
I'm aware of the amount of calories that I eat daily.	2.66	2.33	1.33	1.23	0.322	0.030
I stop eating when I feel satisfied, avoiding eating in excess.	3.76	3.53	1.05	1.09	0.231	0.061

I eat daily at least 3 portions of fruits and/or vegetables.	3.32	2.99	1.24	1.21	0.329	0.020
I follow dietary recommendations from health professionals.	3.28	3.01	1.01	1.08	0.274	0.022
I choose restaurants that offer healthy meals.	3.31	3.14	1.14	1.22	0.170	0.208
I avoid adding salt to my food when eating.	3.63	3.53	1.30	1.27	0.099	0.503
I try to limit my intake of saturated fat.	2.98	2.67	1.18	1.15	0.310	0.021
I replace conventional products with their healthier versions (e.g. low calorie, no sugar)	3.14	2.53	1.22	1.19	0.610	0.000
I avoid eating high calorie products with poor nutritional quality (e.g. sweets, snacks)	3.17	2.95	1.06	1.01	0.224	0.061
In a 1 to 10 scale, how do you evaluate your eating habits?	6.75	6.67	1.65	1.70	0.086	0.653

As the table shows, men and women avoid eating more than needed, choosing the restaurants with healthy options and avoiding adding salt to their food. But, women tend to have a healthier eating behavior than men, what can be seen through the higher scores given by women to all the other behaviors related to healthy eating. Findings are similar to Kiefer *et al.* (2005), who showed that women more often prefer healthy foods, whereas men prefer a traditional diet that is high in fat. Prattala *et al.* (2006) also show that women's diet is healthier than men's. In this sense, women are more concerned about healthy diet and more often worried to classify foods according to the assumed nutrient content than men.

Interestingly, both men and women seem satisfied with the quality of their eating habits and there was no significant difference between the evaluations they made. Since the sentences created to measure healthy eating were based in dietary guidelines, these findings suggest that women have greater compliance to these guidelines or that they are more knowledgeable about food and nutrition, what is in accordance with the observations made by Turrell (1997).

Logistic Regression

Logistic regression is an analytic technique used in multivariate modeling of categorical dependent variables (Demaris, 1995). According to Hair *et al.* (2009), logistic regression is preferred to discriminant analysis in situations of non-normality, which is the case of the present study since an analysis of skewness and kurtosis showed that all the variables have a non-normal distribution. The dichotomous variable used as the dependent variable in logistic regression is gender, with "0" being female and "1" representing male. Since the online survey tool used had a feature that did not allow respondents to leave blank answers, no missing values were found.

The independent variables included in the model were all the 24 items related to motives for food choice, the 10 items that measured healthy eating and the score of individual

evaluation of one's own eating habits quality. In order to run the model a backwise elimination method was employed. Table 4 shows the final results of the logistic regression. The model that resulted from the logistic regression has a predictive power of 73.8% what assesses the validity of the resulting logistic regression model. The Hosmer and Lemeshow test was non-significant which also indicates the acceptability of the model.

Table 4
Means, Mean Differences, Standard Deviation and t-test Significance for Food Choice Motives.

Variables Included in the Model	B	S.E.	Wald	Sig.	Exp(B)
Are nutritious (HEALTHINESS)	-0.506	0.245	4.273	0.039	0.603
Keep me healthy (HEALTHINESS)	0.745	0.266	7.835	0.005	2.107
Are good to my teeth/skin/hair/nails (HEALTHINESS)	-0.475	0.154	9.582	0.002	0.622
Are tasty (TASTE)	0.254	0.201	1.602	0.206	1.289
Food should be a source of pleasure. (TASTE)	-0.329	0.170	3.726	0.054	0.720
Are cheap (PRICE)	0.436	0.203	4.623	0.032	1.547
Are not expensive (PRICE)	-0.342	0.208	2.703	0.100	0.710
I compare prices before buying food products. (PRICE)	-0.474	0.106	19.795	0.000	0.623
I enjoy having company during my meals. (SOCIAL INTERACTIONS)	-0.248	0.125	3.910	0.048	0.780
I try to eat smaller portions. (HEALTHY EATING)	-0.360	0.162	4.959	0.026	0.697
I stop eating when I feel satisfied, avoiding eating in excess. (HEALTHY EATING)	-0.194	0.144	1.816	0.178	0.824
I eat daily at least 3 portions of fruits and/or vegetables. (HEALTHY EATING)	-0.193	0.135	2.051	0.152	0.824
I choose restaurants that offer healthy meals. (HEALTHY EATING)	0.185	0.140	1.756	0.185	1.204
I replace conventional products with their healthier versions (e.g. low calorie, no sugar) (HEALTHY EATING)	-0.462	0.137	11.464	0.001	0.630
In a 1 to 10 scale, how do you evaluate your eating habits? (SCORE)	0.331	0.111	8.973	0.003	1.393
Constant	4.141	1.451	8.140	0.004	62.860

Gender is the dichotomous dependent variable in the logistic regression. Hence, it can be equal to 0 (female) or 1 (male). According to the model provided by the analysis, the probability of the gender being 1 is determined by Equation 1:

$$\frac{p(x)}{1-p(x)} = e^{B_0 + B_1x + B_2x + B_3x...} \quad (1)$$

According to the values of the regressions coefficients B shown in Table 4, the variables that significantly and positively affect the probability of gender being 1 (male) are: “keep me healthy”; “are cheap”; and the score in a 1-10 scale. On the other hand, the variables that affect negatively the probability of gender being 1, thereby increasing the chances of

gender being female are: “are good to my teeth/skin/hair/nails”; “I compare prices before buying food products”; “I enjoy having company during my meals”; “I try to eat smaller portions”; and “I replace conventional products with their healthier versions”.

These observations strengthen the points made previously regarding women being more complied with dietary guidelines, spending more time to compare prices and caring more about appearance choosing products that make them look good. In addition, men seem to care more with their general healthiness and even though they spend less time comparing prices, they value products being cheap more than women do.

According to Hair *et al.*, (2009), in order to analyze to which extent one independent variable affects the probability of the dependent variable being 1 or 0, it is better to analyze the value of $\text{Exp}(B)$ than B itself. $\text{Exp}(B)$ can be interpreted in terms of the change in odds. If the value exceeds 1 then the odds of gender equals 1 occurring increase; if the figure is less than 1, any increase in the predictor leads to a drop in the odds of gender being 1. Hence, it is possible to say that “keep me healthy” is the variable that have the greatest impact on the probability of gender being male (the highest $\text{Exp}(B) = 2,107$) while “are nutritious” is the variable that most increases the chance of gender being female (the lowest $\text{Exp}(B) = 0,603$).

Our results suggest that men and women have distinct priorities regarding food choices, especially those that were analyzed in this study. They behaved similarly in the case of food safety, taste and convenience motives. But considering other motives such as healthiness, price and social interactions, men and women seem to have different opinions. While women tend to care more about food that have benefits to their physical appearance, men seem to find general healthiness more important. In addition, men care more about food being cheap, but are not willing to spend their time on price-comparison shopping. Moreover, social interactions related to food and eating appear to be more important to women than they are to men.

Considering healthy eating, we observed that women tend to comply more with dietary guidelines than men. According to previous studies that can be because they are more knowledgeable about food and nutrition (Turrell, 1997). In spite of that, both men and women seem satisfied with the overall quality of their eating habits, giving high scores in the self-evaluation.

Conclusion

Health is clearly not the only factor people take into account when making their food choices. Many factors can lead to the adoption of healthy eating habits (Steptoe *et al.*, 1995). Hence, it was important to explore the role of other influences on food choice and to understand them in terms of gender differences.

Food choice motives and eating behavior are determined by several factors; genetic disposition plays a role as well as acquired knowledge. Socio-characteristics such as social, cultural or religious affiliation are also determinants (Kiefer *et al.*, 2005)

This investigation brought to light some differences between genders related to food consumption. The results of the statistical analysis showed that women have a heightened concern about their physical and personal appearance than men. Further, although price is an important motive for food choice for both genders, only women compare the prices of food products before buying them. When social interactions in the food context are considered, women seem to give more importance to this aspect than men.

Concerning healthy eating, the analysis showed that women tend to have a healthier eating behavior than men do, what can be seen through the higher scores given by women to all the items related to healthy eating. Using logistic regression to determine the predictor variables of the dichotomous variable gender, the analysis strengthened the points made

previously, namely women being more complied with dietary guidelines, spending more time to compare prices and caring more about appearance choosing products that make them look good. In addition, men seem to care more with their general healthiness and even though they spend less time comparing prices, they value products being cheap more than women do. Both men and women reported that they eat foods that “keep them healthy”, so it was a motive for food choice for both genders. However, when this result was compared with the actual eating behavior, women had healthier eating behavior than men. Thus, it seems to be a divergence between motives for food choice and healthy eating behavior.

The results of the logistic regression analysis pointed that the main difference between genders is the way they interpret healthiness as a motive for food choice. While men find important the products they eat which keep them healthy, women consider more important the fact that they are nutritious. This can be explained by the fact that women are more concerned with nutritional facts of food products.

All these findings corroborate the existence of gender differences in consumer food behavior. It is important that future research explore deeply the reasons why those differences exist and also why in some cases men and women have similar behaviors and opinions. This study is not free of limitations. We have used convenience sampling that affect the generalizability of the findings. Additional suggestions for further studies is the observation and analysis of the relations of gender with others socio-demographic variables, such as age and educational level.

References

- Ares G., & Gámbaro A. (2007). Influence of gender, age and motives underlying food choice on perceived healthiness and willingness to try functional foods. *Appetite*, 49, 148-158
- Bonomo, É., Caiaffa, W. T., César, C. C., Lopes, A. C. S., & Lima-Costa, M. F. (2003). Consumo alimentar da população adulta segundo perfil sócio-econômico e demográfico: Projeto Bambuí. *Cad. Saúde Pública*, 19(5), 1461-1147.
- Botonaki, A.; & Mattas, K. (2010). Revealing the values behind convenience food consumption. *Appetite*. v. 55, p. 629-638.
- Ministério da Saúde. (2005). *Guia Alimentar para a População Brasileira: promovendo a alimentação saudável*. Retrieved October 10, 2011, from http://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira.pdf.
- Brewer, M., & Rojas, M. S. (2008). Consumer attitudes toward issues in food safety. *Journal of Food Safety*, 28(1), 1-22.
- Bublitz, M. G., Peracchio, L. A., & Block, L. G. (2010). Why did I eat that? Perspectives on food decision making and dietary restraint. *Journal of Consumer Psychology*, 20(3): 239-258.
- Connors, M., Bisogni, C. A., Sobal, J., & Devine, C. M. (2001). Managing values in personal food systems. *Appetite*, 36, 189-200.
- Demaris, A. (1995). A tutorial in logistic regression. *Journal of Marriage and the Family*, 57, 956-968.
- Falk, L.W., Sobal, J., Bisogni, C.A., Connors, M., & Devine, C. M. (2001). Managing healthy eating: definitions, classifications, and strategies. *Health Education & Behavior*, 28, 425-439.

- Figueiredo, I. C. R., Jaimel, P. C., & Monteiro, C. A. (2008). Fatores associados ao consumo de frutas, legumes e verduras em adultos da cidade de São Paulo. *Revista Saúde pública*, 42(5), 777-785.
- French, S. A. (2003). Pricing effect on food choices, *Journal of Nutrition*. 133, 841–843.
- Furst, T., Connors, M., Carole, A. B., Sobal, J., & Falk, L. W. (1996). Food Choice: A Conceptual Model of the Process. *Appetite*, 26: 247–266.
- Glanz, K., Basil, M., Maibach, E., Goldberg, J., & Snyder, D. (1998). Why Americans eat what they do: taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. *Journal of the American Diet Association*, 98(10), 118-1126
- Hair Jr., J. F., Black, W. C., Babin, B. J.; Anderson, R. E., & Tathan, R. L. (2009). *Análise multivariada de dados*. (6a ed.). Porto Alegre: Bookman. (Original work published 2005).
- Hermans, R.; Larsen, J.; Herman, P.; Engels, R. (2009) Effects of social modeling on young women’s nutrient-dense food intake. *Appetite*, 53, 135-138.
- Instituto Brasileiro de Geografia e Estatística [IBGE] (2010). *Pesquisa de Orçamentos Familiares 2008-2009: despesas, rendimentos e condições de vida*. Retrieved December 12, 2011, from <http://www.ibge.gov.br/home/estatistica/populacao/condicaodevida/pof>
- Jomori, M. M.; Proença, R. P. C., & Calvo, M. C. M.. (2008). Determinantes de escolha alimentar. *Rev. Nutr*, Campinas, 21(1), 63-73.
- Kiefer, I., Rathmanner, T., & Kunze, M. (2005). Eating and dieting differences in men and women. *The Journal of Men's Health & Gender*, 2(2), 194–201.
- King, S. C., & Meiselman, H. L. (2010). Development of a method to measure consumer emotions associated with foods. *Food Quality and Preference*, 21, 168-177.
- Köster, E. P. (2003). The psychology of food choice: some often encountered fallacies. *Food Quality and Preference*, 14(5-6), 359-373.
- Lusk, J. L., & Briggeman, B. C. (2009). Food Values. *American Journal of Agricultural Economics*, 91(1), 184-196.
- Marmorstein, H., Grewal, D., & Fishe, R. P. H. (1992). The value of time spent in price-comparison shopping: survey and experimental evidence. *Journal of Consumer Research*, 19(1), 52-61.
- Michaelidou, N., Christodoulides, G., & Torova, K. (2012). Determinants of healthy eating: a cross-national study on motives and barriers. *International Journal of Consumer Studies*, 36(1), 17-22.
- Miles, S., Brennan, M., Kuznesof, S., Ness, M., Ritson, C., & Frewer, L. J. (2004). Public worry about specific food safety issues. *British Food Journal*,. 106(1), .9-22.
- Onken, J., Hastie, R., & Revelle, W. (1985). Individual differences in the use of simplification strategies in a complex decision-making task. *Journal of Experimental Psychology: human perception and performance*, 11(1), 14-27.

- Paquette, M. C. (2005). Perceptions of healthy eating: State of knowledge and research gaps. *Canadian Journal of Public Health*, 96, 15-19.
- Prattala, R., Paalanen, L., Grinberga, D., Helasoja, V., Kasmel, A., & Petkeviciene, J. (2006). Gender differences in the consumption of meat, fruit and vegetables are similar in Finland and the Baltic countries. *The European Journal of Public Health*, 17(5), 520-525.
- Preucel, R. W., & Hodder I. (1996). *Contemporary Archaeology in Theory: A Reader (Social Archaeology)*. Australia: Blackwell Publishing.
- Robinson, E.; Tobias, T.; Shaw, L.; Freeman, E.; Higgs, S. (2011). Social matching of food intake and the need for social acceptance. *Appetite*, 56, 747-752.
- Scholderer, J., & Grunert, K. G. (2005). Consumers, food and convenience: the long way from resource constraints to actual consumption patterns. *Journal of Economic Psychology*, 26, 105-128.
- Stephoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a Measure of the Motives Underlying the Selection of Food: the Food Choice Questionnaire. *Appetite*, 25, 267-284.
- Steenkamp, J. B. E. M. (1993). Food consumption behavior.. *European Advances in Consumer Research*, 1, 401-409.
- Turrell, G. (1997). Determinants of gender differences in dietary behavior. *Nutrition Research*, 17(7), 1105-1120.
- Withrow, D., & Alter, D. A. (2011). The economic burden of obesity worldwide: a systematic review of the direct costs of obesity. *Obesity Reviews*, Oxford, 12(2), 131-141.
- World Health Organization. (2004) *Global Strategy on Diet, Physical Activity and Health*. Retrieved December 12, 2011, from http://www.who.int/foodsafety/foodborne_disease/en/