



UNIVERSIDADE ESTADUAL DE CAMPINAS
SISTEMA DE BIBLIOTECAS DA UNICAMP
REPOSITÓRIO DA PRODUÇÃO CIENTÍFICA E INTELLECTUAL DA UNICAMP

Versão do arquivo anexado / Version of attached file:

Versão do Editor / Published Version

Mais informações no site da editora / Further information on publisher's website:

<https://www.emerald.com/insight/content/doi/10.1108/BFJ-08-2013-0216/full/html>

DOI: 10.1108/BFJ-08-2013-0216

Direitos autorais / Publisher's copyright statement:

©2015 by Emerald. All rights reserved.

DIRETORIA DE TRATAMENTO DA INFORMAÇÃO

Cidade Universitária Zeferino Vaz Barão Geraldo

CEP 13083-970 – Campinas SP

Fone: (19) 3521-6493

<http://www.repositorio.unicamp.br>

Raw vegetable salad consumers in full-service restaurants

Mariana Schievano Danelon and Elisabete Salay

Department of Food and Nutrition, University of Campinas, Campinas, Brazil

Received 14 August 2013
Revised 5 March 2014
Accepted 13 March 2014

Abstract

Purpose – The purpose of this paper is to identify the profiles of those frequenting full-service restaurants and eating raw vegetable salads, as well as to analyze the influence of socio-demographic variables and of the tendency for social desirability in consumption frequencies.

Design/methodology/approach – A non-probabilistic consumer sample ($n = 630$) was interviewed in the city of Campinas, Brazil. Besides the frequency of eating in full-service restaurants and the frequency of eating salads (as a function of the meal type and week day) in this type of restaurant, the survey instrument was also composed by socio-demographic variables and a social desirability scale. To compare data, non-parametric tests were used.

Findings – Of the interviewees, 52.3 percent were shown to eat in full-service restaurants at least once a week. The frequency of eating salads in full-service restaurant stood out as being significantly higher ($p < 0.05$) for weekday lunches. Individuals who graduated in the areas of health or food showed a significantly higher frequency for the consumption of salads at weekends. Apparently the social desirability did not influence the responses of the consumers with respect to the frequencies studied.

Research limitations/implications – The sample was of a non-probabilistic type, bringing reservations with respect to generalizations.

Practical implications – Socio-demographic variables should be considered in elaborating strategies for promoting vegetable salads consumption in restaurants. Health and nutrition education programs can be effective in aiding consumers to choose healthier food in this context.

Originality/value – Studies about frequency of salad consumption in restaurants are scarce. The influence of social desirability bias on reported frequency was analyzed in this paper.

Keywords Consumer, Food consumption, Food service, Restaurants, Socio-demographic variables, Food behaviour

Paper type Research paper

Introduction

In recent decades an increase has been observed in various countries in the number of meals eaten away-from-home as also in the number of establishments in the foodservice sector. It was estimated in 2009 that of the total amount spent on feeding, 47.5 and 31.0 percent was spent on food eaten away-from-home in the USA and Brazil, respectively (Economic Research Service, 2011; Instituto Brasileiro de Geografia e Estatística (IBGE), 2010a). The data available for the European Union revealed a similar tendency (Mitchell, 2004).

In Brazil the foodservice sector grew 198 percent between 1999 and 2009 and sales by commercial restaurants totaled ten billion dollars in 2004 (Associação Brasileira das Indústrias da Alimentação, 2010). Of commercial restaurants, the full-service modality represents an important segment both in Brazil and in other countries such as the USA, for example, and thus the focus of this survey was directed at this modality (Associação Nacional de Restaurantes, 2008; Economic Research Service, 2011).



A full-service restaurant can be defined as a place where the client chooses what he/she wishes to eat from the options available on a menu, places his/her order with a waiter and receives the chosen dish at his/her table (North American Industry Classification System, 2007).

The foodservice sector can have a relevant influence with regard to the type and the quantity of food consumed by individuals (Creel *et al.*, 2008; Guthrie *et al.*, 2002). Previous studies pointed out the higher content of energy and total and saturated fats in food offered in some types of restaurants, such as fast food (Binkley, 2006; Guthrie *et al.*, 2002; Satia *et al.*, 2004). However, this situation has been changing, with healthier menu items being available in restaurants. In the USA, for example, the offer of vegetable salads rose in both full-service and quick-service restaurants (Han, 1998; National Restaurant Association, 2005). However, the pattern of food consumed in different types of restaurants by certain segments of the population is still unknown in Brazil.

It is relevant to refer that the dietary pattern of the populations of various countries has been characterized by a reduced consumption of vegetables (Centers for Disease Control and Prevention (CDC), 2010; Elmadfa, 2009; IBGE, 2010a; Marchioni *et al.*, 2011). Programs with the objective of increasing vegetable consumption have been implemented (Glanz and Yaroch, 2004; Sorensen *et al.*, 2004). Thus the use of the foodservices could represent an opportunity for the consumer to include a variety of this food group in his/her diet. According to Glanz and Hoelscher (2004), restaurants are among the most important and promising places as initiatives to increase the consumption of vegetables.

It is necessary to take into consideration that socio-demographic factors may influence both the choice of consumers for different restaurant modalities and for the foods/menus to be consumed there (Angulo *et al.*, 2007; Binkley, 2006; Blanck *et al.*, 2009; Fisberg *et al.*, 2006; Herman *et al.*, 2006; Inglis *et al.*, 2005; Jang *et al.*, 2007; Medeiros and Salay, 2013; Rezende and Avelar, 2012; Sanches and Salay, 2011; Satia *et al.*, 2004). Gender, age, family income, educational level and education in the health or food areas have been reported as relevant factors affecting consumer food behavior away-from-home (Medeiros and Salay, 2013; Stewart *et al.*, 2004), thus they will be analyzed in the present study.

In studies aimed at identifying the consumption frequency of different foods, the importance of analyzing social desirability was highlighted, which can cause a measurement bias (Hebert *et al.*, 2008; Miller *et al.*, 2008). This bias results from the tendency of an individual to confer responses that satisfy social norms, and can be identified by the use of scales such as the Marlowe-Crowne scale (Crowne and Marlowe, 1960). The tendency to provide socially desirable replies can also be influenced by socio-demographic variables (Ross and Mirowski, 1984). Due to these considerations, it was decided to include an analysis of social desirability in the present study.

Thus the objective of this survey was to identify those who eat in full-service restaurants, as well as those who eat raw vegetable salad in full-service restaurants. The hypotheses to be verified are that the consumption frequency in full-service restaurants and the consumption frequency of raw vegetable salad in full-service restaurants vary according to consumer gender, age, income, educational level, graduation in the health or food areas and social desirability tendency.

Methods

Study design and sample

The survey was carried out in the city of Campinas, State of São Paulo, Brazil, a city that can be characterized as a large urban center (total population in 2010 of about

1.08 million inhabitants, of which 52 percent women and 71 percent 18 years of age or above), and with an expressive economic representation in the country (Instituto Brasileiro de Geografia e Estatística (IBGE), 2010b).

The study was cross-sectional and the sample of a non-probabilistic nature, consisting of 630 individuals. Only subjects older than 18 years, residing in the municipality of Campinas, who confirmed they had eaten in full-service restaurants and consumed raw vegetable salads at least once in the previous three months and who agreed to take part in the survey and signed a term of consent, were interviewed.

Data collection

The survey was carried out between the months of January and May, 2011. Individuals were approached in a non-systematic way in three shopping centers in the city of Campinas. Shopping centers were chosen to carry out the survey since they have a greater circulation of people and concentration of restaurants, frequently including the full-service modality. In spite of having approached eight shopping centers the interviews were conducted in three of these locations that had given permission.

Face-to-face interviews with consumers were performed by the researcher responsible for the survey (first author) or by previously trained food engineering students. The interviewer also received a manual with detailed instructions about the data collection procedures.

The questionnaire applied in the interviews consisted of closed questions involving the frequency of eating in full-service restaurants during the previous three months, with reply options varying from “once a month or less” to “5 times or more per week.” It was also questioned the frequency of consuming raw vegetable salads (as a starter or as part of the main meal) during the previous three months, in full-service restaurants, according to the type of meal (lunch or dinner) and the period of the week (weekday or weekend). The frequency of eating raw vegetable salads was measured on a five-point scale: 1 = never, 2 = infrequently, 3 = moderately frequently, 4 = very frequently and 5 = always. The following socio-demographic variables were also included in the questionnaire: gender, age, educational level, monthly family income and graduation of the interviewee in an area of health or food. A version of the Marlowe-Crowne scale was used to evaluate social desirability, adapted and validated to Brazilian reality by Gouveia *et al.* (2009). This scale was composed of 20 items, for which the consumer had to indicate “true” or “false.” In the data analysis referring to social desirability, the response conferred by each consumer for each item on the scale was transformed into a score of “0” or “1” according to the scoring described by Scagliusi *et al.* (2004). For each consumer, the total score of the scale was obtained by summing up the individual scores awarded to the items.

The survey instrument was pre-tested by way of interviews involving a sample ($n = 30$) of consumers recruited from the University of Campinas, Brazil. The objective of the pre-test was to evaluate the time taken for each interview, and understanding of the questions and reply options by the interviewee.

Data analysis

The data analyses were carried out using the Predictive Analytics Software, version 2010.18.0, XLSTAT, version 2011 and the MINITAB, version 14. The associations between the frequency of consumption in full-service restaurants and the socio-demographic variables were examined by way of the χ^2 test. Significant differences in the frequency of eating raw vegetable salads in the different situations

examined were identified using the non-parametric Friedman test (based on the fact that the data presented deviations from normality according to the Shapiro-Wilks test), followed by the Nemenyi test for the paired multiple comparison. For the analyses involving a comparison between eating frequencies of raw vegetable salads and the socio-demographic variables, the Mann-Whitney test was used in the case of two independent groups, and the Kruskal-Wallis test (followed by Dunn's paired multiple comparison) in the case of three or more independent groups. To evaluate differences in the tendency of individuals to social desirability as a function of socio-demographic variables, parametric tests were carried out (based on the fact that the data for desirability followed a normal distribution according to the Kolmogorov-Smirnov test), that is, the Student *t* test for independent samples (for the variables of gender and graduation in an area of health or food) and ANOVA, followed by Tukey's multiple comparisons test (for the other socio-demographic variables). Spearman's correlation was used to evaluate if the replies concerning the frequency of eating in full-service restaurants and the frequency of eating vegetable salads in this type of establishment suffered any influence of social desirability. The level of significance adopted for the analyses was 5 percent.

The protocol for the survey was approved by the Ethics in Research Committee of the Faculty of Medical Science of the University of Campinas (Protocol No. 1113/2009).

Results

The majority of the population interviewed consisted of women (57.1 percent). The greater proportion of the consumers were between 26 and 40 years of age (40.1 percent) with a monthly family income of up to ten minimum salaries (55.1 percent) and a university or post-graduate education (69.2 percent). However, the majority of the consumers (82.4 percent) had not graduated in an area of health or food (Table I).

A greater proportion (27.3 percent) of consumers ate meals in full-service restaurants between two and three times a month. The frequency of consumption of a minimum of five times a week was reported by 18.7 percent of the interviewees (Table II).

With respect to social desirability, significant differences were observed when the age ($p = 0.000$) and graduation in health or food of the population studied ($p = 0.024$) were considered. Individuals up to 25 years old presented a reduced tendency for social desirability when compared to those over 40, and a lower tendency was observed for consumers graduated in areas of health or food (Table I).

The results obtained for the χ^2 tests provided evidence of significant differences in the frequency of eating in full-service restaurants according to the variables of gender ($p = 0.032$), monthly family income ($p = 0.005$) and educational level ($p < 0.001$). With respect to gender, men were found to eat more frequently in full-service restaurants. Whereas 57.8 percent of the men reported frequenting this type of restaurant at least once a week, 48.3 percent of the women gave the same reply. With respect to monthly family income, individuals with incomes greater than 15 minimum salaries ate in full-service restaurants with greater frequency than consumers with lower incomes. The fact that the majority of individuals with incomes of up to six minimum salaries reported they frequented such restaurants with less frequency (up to three times a month) also stood out. With respect to educational level, it could be seen that the frequency of eating in full-service restaurants increased with the degree of educational level of the interviewees. Thus individuals with university or post-graduate levels of

| BFJ 117,3 | Socio-demographic characteristics | n | % | Social desirability | |
|--|--|------|-------|----------------------|---------|
| | | | | Mean ^{a, b} | p-value |
| 1140 | <i>Gender</i> | | | | 0.319 |
| | Male | 270 | 42.9 | 11.5A | |
| | Female | 360 | 57.1 | 11.3A | |
| | <i>Age range (years)^c</i> | | | | 0.000** |
| | 18-25 | 178 | 28.3 | 10.6A | |
| | 26-40 | 252 | 40.1 | 11.3AB | |
| | 41-55 | 143 | 22.7 | 11.9B | |
| | Over 55 | 56 | 8.9 | 13.3C | |
| | <i>Monthly family income range (in minimum salaries)^d</i> | | | | 0.134 |
| | Up to 3 | 110 | 17.5 | 11.0A | |
| | More than 3 up to 6 | 124 | 19.7 | 11.2A | |
| | More than 6 up to 10 | 113 | 17.9 | 11.8A | |
| | More than 10 up to 15 | 97 | 15.4 | 10.9A | |
| | More than 15 | 70 | 11.1 | 11.8A | |
| Does not know/does not want to say | 116 | 18.4 | 11.9A | | |
| <i>Educational level</i> | | | | 0.153 | |
| Up to high school but incomplete | 43 | 6.8 | 11.6A | | |
| High school complete | 151 | 24.0 | 11.7A | | |
| University | 358 | 56.8 | 11.1A | | |
| Post-graduation | 78 | 12.4 | 11.2A | | |
| <i>Graduation in health or food area</i> | | | | 0.024* | |
| Yes | 111 | 17.6 | 10.8A | | |
| No | 519 | 82.4 | 11.5B | | |

Table I. Distribution of the population interviewed ($n = 630$) according to socio-demographic characteristics and the social desirability tendency

Notes: ^aThe values could vary from 0 to 20; ^bmeans with the same letters for each socio-demographic variable do not differ significantly; ^cinformation about age was obtained from 629 consumers; ^dminimum salary of US\$ 340.00 at the time of the survey. *,**Significant at the 5 and 0.1 percent levels, respectively

Source: Campinas, Brazil (2011)

education ate meals in the type of restaurant under survey with greater frequency than those with only a complete high school level (Table II).

Significant differences ($p < 0.001$) were also observed when analyzing the frequency of eating raw vegetable salads in full-service restaurants according to the type of meal (lunch or dinner) and the day of the week (weekday or weekend). The mean frequency for the consumption of salads was significantly higher at lunchtime on weekdays (mean of 3.6), followed by lunchtime at weekends (mean of 2.9) and finally by dinner (with no significant differences between the consumption on weekdays – mean of 2.1 – and at weekends – mean of 2.2 – for this meal). Note also that for the lunchtime meal on weekdays, 54.6 percent of the individuals reported consuming vegetable salads in the categories of “always” or “very frequently,” whereas for dinners, about half of the consumers affirmed never consuming raw vegetable salads in full-service restaurants (Figure 1).

An analysis of the frequency of consuming raw vegetable salads in full-service restaurants according to socio-demographic variables (Table III) showed significant differences for determined days of the week and meal types when the monthly family income, educational level and graduation in an area of health or food were considered.

Although few differences were significant there was no clear trend between the income and the educational groups and the salad consumption frequency in full-service

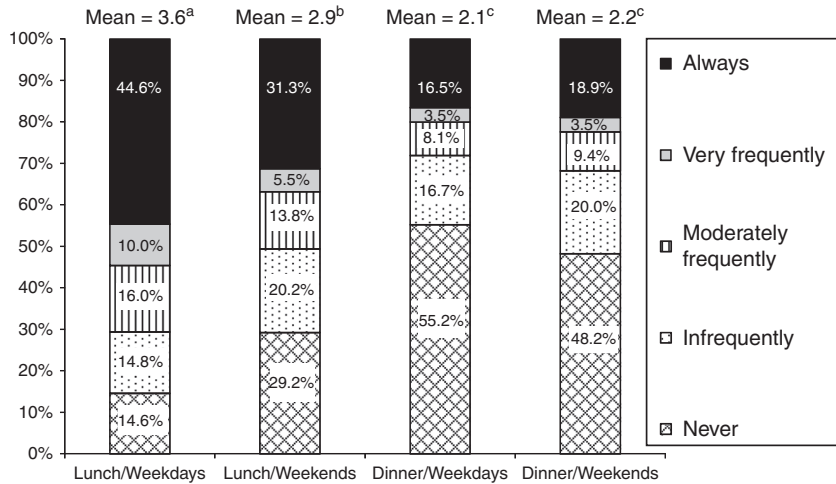
| Socio-demographic variables | Frequency of eating in full-service restaurants | | | | | | | | | | | | p-value |
|--|---|------|----------------------------|------|-------------------------|------|----------------------------|------|---------------------------|------|---|---|-----------|
| | Once a month or less | | Two to three times a month | | One to two times a week | | Three to four times a week | | Five or more times a week | | | | |
| | n | % | n | % | n | % | n | % | n | % | n | % | |
| <i>Gender</i> | | | | | | | | | | | | | |
| Male | 41 | 15.2 | 73 | 27.0 | 59 | 21.9 | 41 | 15.2 | 56 | 20.7 | | | 0.032* |
| Female | 87 | 24.2 | 99 | 27.5 | 76 | 21.1 | 36 | 10.0 | 62 | 17.2 | | | 0.233 |
| <i>Age</i> | | | | | | | | | | | | | |
| 18-25 years | 35 | 19.7 | 50 | 28.1 | 45 | 25.3 | 21 | 11.8 | 27 | 15.2 | | | |
| 26-40 years | 47 | 18.6 | 61 | 24.1 | 51 | 20.2 | 35 | 13.8 | 59 | 23.3 | | | |
| 41-55 years | 32 | 22.5 | 41 | 28.9 | 32 | 22.5 | 12 | 8.5 | 25 | 17.6 | | | |
| Over 55 years | 14 | 25.0 | 19 | 33.9 | 7 | 12.5 | 9 | 16.1 | 7 | 12.5 | | | 0.005** |
| <i>Monthly family income range (in minimum salaries)^a</i> | | | | | | | | | | | | | |
| Up to 3 | 36 | 32.7 | 26 | 23.6 | 15 | 13.6 | 11 | 10.0 | 22 | 20.0 | | | |
| More than 3 up to 6 | 27 | 21.8 | 39 | 31.5 | 27 | 21.8 | 11 | 8.9 | 20 | 16.1 | | | |
| More than 6 up to 10 | 15 | 13.3 | 28 | 24.8 | 31 | 27.4 | 16 | 14.2 | 23 | 20.4 | | | |
| More than 10 up to 15 | 19 | 19.6 | 25 | 25.8 | 22 | 22.7 | 15 | 15.5 | 16 | 16.5 | | | |
| More than 15 | 6 | 8.6 | 14 | 20.0 | 17 | 24.3 | 16 | 22.9 | 17 | 24.3 | | | <0.001*** |
| <i>Educational level</i> | | | | | | | | | | | | | |
| Up to high school but incomplete | 16 | 37.2 | 14 | 32.6 | 3 | 7.0 | 2 | 4.7 | 8 | 18.6 | | | |
| High school complete | 45 | 29.8 | 44 | 29.1 | 29 | 19.2 | 12 | 7.9 | 21 | 13.9 | | | |
| University | 60 | 16.8 | 93 | 26.0 | 84 | 23.5 | 48 | 13.4 | 73 | 20.4 | | | |
| Post-graduation | 7 | 9.0 | 21 | 26.9 | 19 | 24.4 | 15 | 19.2 | 16 | 20.5 | | | |
| <i>Graduation in health or food area</i> | | | | | | | | | | | | | |
| Yes | 17 | 15.3 | 32 | 28.8 | 30 | 27.0 | 16 | 14.4 | 16 | 14.4 | | | 0.230 |
| No | 111 | 21.4 | 140 | 27.0 | 105 | 20.2 | 61 | 11.8 | 102 | 19.7 | | | |
| Total | 128 | 20.3 | 172 | 27.3 | 135 | 21.4 | 77 | 12.2 | 118 | 18.7 | | | |

Notes: n = 630. ^aFamily income in minimum salaries, whose value corresponded to US\$ 340.00 at the time of the survey. *, **, ***Significant at the 5, 1, and 0.1 percent levels, respectively, by the χ^2 test

Source: Campinas, Brazil (2011)

Table II. Frequency of eating in full-service restaurants in the three months prior to the survey, according to socio-demographic variables

Figure 1. Frequency of eating raw vegetable salads in full-service restaurants during the three months prior to the survey, according to the type of meal (lunch or dinner) and day of the week (weekday or weekend)



Notes: $n=630$. ^{a,b,c}Different letters indicate significant differences ($p < 0.001$) between the means for the consumption frequency of raw vegetable salads in full-service restaurants

Source: Campinas, Brazil (2011)

restaurants. With respect to family income, differences were observed ($p = 0.021$) with respect to eating raw vegetable salads at dinnertime on weekdays, when consumers with an income between 10 and 15 minimum salaries showed a reduced eating frequency as compared to those with an income between three and six minimum salaries. Considering the educational level, significant differences ($p = 0.031$) were recorded for the frequency of eating vegetables at dinnertime on weekends, where consumers with a lower educational level (up to high school incomplete) consumed raw vegetable salads less frequently than those with high school complete or university education.

Individuals graduated in an area of health or food showed a greater frequency of eating raw vegetable salads at the weekend both at lunchtime ($p = 0.046$) and at dinnertime ($p = 0.018$) (Table III).

No significant correlations ($p > 0.05$) were observed between social desirability and the following variables: frequency of eating in full-service restaurants ($r = -0.075$); frequency of eating raw vegetable salads at lunchtime on weekdays ($r = 0.002$) or weekends ($r = 0.093$) or at dinnertime on weekends ($r = -0.012$). The correlation between social desirability and the frequency of eating vegetable salads at dinnertime during weekdays was significant ($p < 0.05$), although the correlation coefficient was low and negative ($r = -0.116$).

Discussion

For the sample of individuals frequenting full-service restaurants, 52.3 percent reported taking meals in this modality of restaurant at least once a week. Among adult Americans, those who reported frequenting full-service restaurants represented 90 percent of the consumers interviewed, and the survey registered that 68 percent frequented this type of restaurant at least once a week in 1995-1996 (Duffey *et al.*, 2007).

| Socio-demographic variables | Frequency of eating raw vegetable salads | | | | | | | | | | | | | | | |
|--|--|----------------------|-----------------------------|----------|-----------------------------|----------------------|-----------------------------|----------|-----------------------------|----------------------|-----------------------------|----------|-----|-------|-----|--------|
| | Lunch | | | | Dinner | | | | Weekends | | | | | | | |
| | First quartile ^a | Median ^{ab} | Third quartile ^a | <i>p</i> | First quartile ^a | Median ^{ab} | Third quartile ^a | <i>p</i> | First quartile ^a | Median ^{ab} | Third quartile ^a | <i>p</i> | | | | |
| <i>Gender</i> | | | | 0.177 | | | | 0.844 | | | | 0.204 | | | | 0.338 |
| Male | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 3.0 | |
| Female | 2.0 | 4.0A | 5.0 | | 1.0 | 3.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 3.0 | |
| <i>Age</i> | | | | 0.578 | | | | 0.220 | | | | 0.810 | | | | 0.962 |
| 18-25 years | 2.0 | 4.0A | 5.0 | | 1.0 | 2.5A | 5.0 | | 1.0 | 1.0A | 2.8 | | 1.0 | 2.0A | 3.8 | |
| 26-40 years | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 3.0 | |
| 41-55 years | 2.0 | 5.0A | 5.0 | | 1.0 | 3.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 3.0 | |
| More than 55 years | 2.0 | 4.0A | 5.0 | | 2.0 | 3.0A | 5.0 | | 1.0 | 1.0A | 2.0 | | 1.0 | 2.0A | 3.3 | |
| <i>Family income (in minimum salaries)^f</i> | | | | 0.733 | | | | 0.802 | | | | 0.021* | | | | 0.408 |
| Up to 3 | 2.0 | 3.0A | 5.0 | | 1.0 | 3.0A | 5.0 | | 1.0 | 1.0AB | 3.8 | | 1.0 | 1.0A | 3.0 | |
| More than 3 up to 6 | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.5A | 3.0 | | 1.0 | 2.0A | 3.3 | |
| More than 6 up to 10 | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0AB | 3.0 | | 1.0 | 2.0A | 3.0 | |
| More than 10 up to 15 | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0B | 2.0 | | 1.0 | 1.0A | 3.0 | |
| More than 15 | 2.0 | 4.0A | 5.0 | | 2.0 | 3.0A | 4.0 | | 1.0 | 2.0A | 3.8 | | 1.0 | 2.0A | 4.0 | |
| <i>Educational level</i> | | | | 0.160 | | | | 0.174 | | | | 0.233 | | | | 0.031* |
| Up to high school but incomplete | 2.0 | 3.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0A | 2.0 | | 1.0 | 1.0B | 2.0 | |
| High school complete | 2.0 | 3.0A | 5.0 | | 1.0 | 2.0A | 5.0 | | 1.0 | 1.0A | 2.0 | | 1.0 | 2.0A | 3.0 | |
| University | 2.0 | 4.0A | 5.0 | | 1.0 | 3.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 3.0 | |
| Post-graduation | 3.0 | 4.0A | 5.0 | | 1.0 | 2.0A | 4.0 | | 1.0 | 1.0A | 2.0 | | 1.0 | 2.0AB | 2.0 | |
| <i>Graduation in health or food area</i> | | | | 0.750 | | | | 0.046* | | | | 0.215 | | | | 0.018* |
| Yes | 2.0 | 4.0A | 5.0 | | 1.5 | 3.0A | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 2.0A | 4.0 | |
| No | 2.0 | 4.0A | 5.0 | | 1.0 | 2.0B | 5.0 | | 1.0 | 1.0A | 3.0 | | 1.0 | 1.0B | 3.0 | |

Notes: ^aResults showing a common letter indicate no significant differences between each socio-demographic variable and situation studied (lunch on weekdays, lunch on weekends, dinner on weekdays or dinner on weekends); ^bvalues expressed on a five-point scale for the responses, where 1 = never and 5=always; ^cfamily income in minimum salaries, whose value corresponded to US\$ 340.00 at the time of the survey. ^dSignificant at the 5 percent level

Source: Campinas, Brazil (2011)

Table III. Frequency of eating raw vegetable salads in full-service restaurants during the three months prior to the survey, by type of meal (lunch or dinner) and day of the week (weekday or weekend), and according to the socio-demographic variables

In Brazil, among consumers who reported taking meals in full-service restaurants, 51.4 percent did so weekly in Rio de Janeiro and 54 percent rarely in Campinas (Castelo Branco *et al.*, 2003; Sanches and Salay, 2011).

In the present study, the greatest frequency in full-service restaurants was related to the male gender, and higher monthly family income and educational level. With respect to gender, a result similar to that observed in the present survey was recorded among American consumers, where men took more meals in full-service restaurants than women (Binkley, 2006; Kim and Leigh, 2011). Considering the association with family income or educational level, the results of the present survey agreed with other studies carried out with Brazilian consumers (Castelo Branco *et al.*, 2003; Sanches and Salay, 2011) and with costumers in other countries (Keelan *et al.*, 2009; Kim and Leigh, 2011; Larson *et al.*, 2011).

Few papers exist in which the frequency of consuming vegetable salads in restaurants was analyzed and in which, in addition, the differences in consumption frequency were identified as a function of the type of meal and period of the week, making it difficult to compare the results of the present survey with those in the literature.

In the present study, weekday lunch was the meal for which the consumers reported the greatest frequency of consuming vegetable salads in full-service restaurants. In this case, the majority of the interviewees ate them “very frequently” or “always” at lunchtime on weekdays. In a study carried out by Blanck *et al.* (2009) 46.4 percent of American consumers affirmed they “frequently” or “always” chose foods considered healthier, such as vegetables and fruits and those with reduced fat content in a restaurant/luncheonette for their workday lunches. Binkley (2006) found a positive association between the frequency with which American consumers ate in full-service restaurants and the participation of fruits and vegetables in the diet.

However, in the present survey, about 30 percent of the individuals admitted not eating raw vegetable salads, or eating them infrequently in full-service restaurants at lunchtime on weekdays. The price, time taken to consume the meal, eating of meals in the presence of parents or friends and concern with the contamination of vegetables served raw, are some of the factors which could affect the consumption of this food group, as highlighted by the literature in other buying contexts (Brug *et al.*, 1995; Inglis *et al.*, 2005; Ling and Horwath, 2001).

In the present survey a lower frequency was observed for the consumption of vegetable salads in full-service restaurants for weekend lunch meals than weekday ones. A similar result was identified by Baranowski *et al.* (1999) in which the consumption of vegetables (in this case considering both consumption in and away from the home) was considerably lower (1.0 portion per day) at lunchtime on weekends as compared to the same meal on weekdays. A survey of a qualitative nature among consumers in the city of São Paulo, Brazil, found that eating away-from-home presented distinct connotations when considering weekdays and weekends. In the latter case, eating away-from-home was characterized by the participants of the study as a sociable, leisure activity, hence emphasizing the search for different places to eat their meals, as compared to those chosen on weekdays. The consumption of foods distinct from those habitually consumed during the week was also registered (Garcia, 1997). In the present survey it is possible that the alteration in food choices at the weekends, with a reduction in the consumption of vegetable salads, could be justified, in part, by the connotation of leisure conferred on this type of meal, which could favor the choice of menus the consumer considers less healthy. This result deserves further investigation in future studies.

Considering dinner (both on weekdays and weekends), the mean frequencies for the consumption of vegetable salads in full-service restaurants for these meals were lower than at lunchtime. In the studies of Baranowski *et al.* (1997) and Cullen *et al.* (2005) with children, a reduced frequency of eating vegetables was also reported for the dinner meal as compared to the frequency at lunchtime. However, in a survey carried out with adult Americans, a slightly higher mean consumption of fruits and vegetables was found at dinnertime (1.5 portions per day) than at lunchtime (1.4 portions per day), on weekdays (Baranowski *et al.*, 1999).

Regarding consumer characteristics, standing out from the comparison results the graduation in areas of health and food was related to a higher frequency of salad consumption in full-service restaurants on the weekend. Other studies have also shown that greater knowledge in the health and food areas could encourage healthier eating habits (Ha and Bish, 2009; Wardle *et al.*, 2000). Therefore, actions aimed at informing the consumer about the health benefits of eating vegetables could aid in making healthier choices when eating away-from-home.

With respect to analyses involving social desirability, a higher trend for this bias was observed for consumers older than 55 years. Ross and Mirowsky (1984) verified a similar result and argued that older individuals became more dependent on the approval of others, favoring more socially desirable responses by this group.

For measurements of vegetable acquisition, Baranowski *et al.* (2007) found a significant, negative correlation between the social desirability and the subject responses. The present research observed a similar result for the correlation between social desirability and the consumption of raw vegetable salads at dinnertime on weekdays. However, in the present survey the correlation value was reduced ($r = -0.116$), so apparently the social desirability bias did not influence consumer responses. For weak correlation values ($0.11 < r < 0.14$), Piehota *et al.* (2009) also considered a limited influence of social desirability on the self-reporting of vegetable consumption.

As a limitation of the present survey, the sample was of a non-probabilistic type, bringing reservations with respect to generalizations based on the results obtained. In addition, the study cross-sectional design limits judgments about causation. However, the findings of the present survey are original and relevant for discussions on health promotion in the context of full-service restaurants.

Considering the pertinence of the theme, further studies are recommended involving the frequency of eating vegetables in other restaurant modalities, such as self-service ones, for example. The inclusion of other variables apart from socioeconomic ones, which could influence eating away-from-home (such as psychosocial factors, for example) is also recommended.

Conclusions

For the sample of individuals studied in the city of Campinas, those most accustomed to having their meals in full-service restaurants were male, and those with higher family incomes and higher educational levels. Subjects graduated in the areas of health or food showed a significantly higher frequency for the consumption of salads in full-service restaurants (lunch and dinner at weekends). Social desirability apparently had no influence on the responses referring to the studied frequencies.

Implementation of public or private strategies favoring the consumption of vegetable salad in restaurants is pertinent. The results of the present study suggest that the investment in health and nutrition education programs may be effective in helping consumers to make healthier choices in meals taken away-from-home.

References

- Angulo, A.M., Gil, J.M. and Mur, J. (2007), "Spanish demand for food away from home: analysis of panel data", *Journal of Agricultural Economics*, Vol. 58 No. 2, pp. 289-307.
- Associação Brasileira das Indústrias da Alimentação (2010), "O mercado de food service no Brasil", available at: www.abia.org.br/cfs2012/mercado.asp (accessed September 3, 2011).
- Associação Nacional de Restaurantes (2008), "ANR e o mercado de alimentação fora do lar", available at: www.anrbrasil.org.br/Apresentacao_Institucional_ANR_2008.pdf (accessed June 6, 2011).
- Baranowski, T., Cullen, K.W. and Baranowski, J. (1999), "Psychosocial correlates of dietary intake: advancing dietary intervention", *Annual Review of Nutrition*, Vol. 19 No. 1, pp. 17-40.
- Baranowski, T., Smith, M., Hearn, M.D., Lin, L.S., Baranowski, J., Doyle, C., Resnicow, K. and Wang, D.T. (1997), "Patterns in children's fruit and vegetable consumption by meal and day of the week", *Journal of the American College of Nutrition*, Vol. 16 No. 3, pp. 216-223.
- Baranowski, T., Watson, K., Missaghian, M., Broadfoot, A., Baranowski, J., Cullen, K., Nicklas, T., Fisher, J. and O'Donnell, S. (2007), "Parent outcome expectancies for purchasing fruit and vegetables: a validation", *Public Health Nutrition*, Vol. 10 No. 3, pp. 280-291.
- Binkley, J.K. (2006), "The effect of demographic, economic, and nutrition factors on the frequency of food away from home", *The Journal of Consumer Affairs*, Vol. 40 No. 2, pp. 372-391.
- Blanck, H.M., Yaroch, A.L., Atienza, A.A., Yi, S.L., Zhang, J. and Mâsse, L.C. (2009), "Factors influencing lunchtime food choices among working Americans", *Health Education & Behavior*, Vol. 36 No. 2, pp. 289-301.
- Brug, J., Debie, S., van Assema, P. and Weijts, W. (1995), "Psychosocial determinants of fruit and vegetable consumption among adults: results of focus group interviews", *Food Quality and Preference*, Vol. 6 No. 2, pp. 99-107.
- Castelo Branco, N.S.D., Salay, E. and Barbosa, C.G. (2003), "Alimentação fora do domicílio: ii. tipos de estabelecimentos de consumo no horário do almoço, centro comercial do município do Rio de Janeiro", *Revista Universidade Rural*, Vol. 25 Nos 1/2, pp. 53-62.
- Centers for Disease Control and Prevention (CDC) (2010), "State-specific trends in fruit and vegetable consumption among adults – United States, 2000-2009", *Morbidity and Mortality Weekly Report*, Vol. 59 No. 35, pp. 1125-1163.
- Creel, J.S., Sharkey, J.R., McIntosh, A., Anding, J. and Huber, J.C. Jr (2008), "Availability of healthier options in traditional and nontraditional rural fast-food outlets", *BMC Public Health*, Vol. 8 No. 1, pp. 395-403.
- Crowne, D.P. and Marlowe, D. (1960), "A new scale of social desirability independent of psychopathology", *Journal of Consulting Psychology*, Vol. 24 No. 4, pp. 349-354.
- Cullen, K.W., Watson, K., Baranowski, T., Baranowski, J.H. and Zakeri, I. (2005), "Squire's quest: intervention changes occurred at lunch and snack meals", *Appetite*, Vol. 45 No. 2, pp. 148-151.
- Duffey, K.J., Gordon-Larsen, P., Jacobs, D.R. Jr, Williams, O.D. and Popkin, B.M. (2007), "Differential associations of fast food and restaurant food consumption with 3-y change in body mass index: the coronary artery risk development in young adults study", *The American Journal of Clinical Nutrition*, Vol. 85 No. 1, pp. 201-208.
- Economic Research Service (2011), "Briefing rooms: food CPI and expenditures", available at: www.ers.usda.gov/briefing/cpi_foodandexpenditures/Data/Expenditures_tables/table15.htm (accessed October 4, 2011).
- Elmadfa, I. (2009), *European Nutrition and Health Report 2009*, Forum of Nutrition, Basel.

- Fisberg, R.M., Morimoto, J.M., Slater, B., Barros, M.B.A., Carandina, L., Goldbaum, M., Latorre, M.R.D.O. and César, C.L.G. (2006), "Dietary quality and associated factors among adults living in the state of São Paulo, Brazil", *Journal of the American Dietetic Association*, Vol. 106 No. 12, pp. 2067-2072.
- Garcia, R.W.D. (1997), "Práticas e comportamento alimentar no meio urbano: um estudo no centro da cidade de São Paulo", *Cadernos de Saúde Pública*, Vol. 13 No. 3, pp. 455-467.
- Glanz, K. and Hoelscher, D. (2004), "Increasing fruit and vegetable intake by changing environments, policy and pricing: restaurant-based research, strategies, and recommendations", *Preventive Medicine*, Vol. 39 No. 2, pp. S88-S93.
- Glanz, K. and Yaroch, A.L. (2004), "Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change", *Preventive Medicine*, Vol. 39 No. 2, pp. S75-S90.
- Gouveia, V.V., Guerra, V.M., Sousa, D.M.F., Santos, W.S. and Costa, J.M. (2009), "Escala de deseabilidade social de marlowe-crowne: evidências de sua validade fatorial e consistência interna", *Avaliação Psicológica*, Vol. 8 No. 1, pp. 87-98.
- Guthrie, J.F., Lin, B.H. and Frazao, E. (2002), "Role of food prepared away from home in American diet, 1977-78 versus 1994-96: changes and consequences", *Journal of Nutrition Education and Behavior*, Vol. 34 No. 3, pp. 140-150.
- Ha, E.J. and Bish, N.C. (2009), "Effect of nutrition intervention using a general nutrition course for promoting fruit and vegetable consumption among college students", *Journal of Nutrition Education and Behavior*, Vol. 41 No. 2, pp. 103-109.
- Han, G. (1998), "Salad selection soar", available at: www.restaurant.org/ (accessed May 26, 2009).
- Hebert, J.R., Hurley, T.G., Peterson, K.E., Resnicow, K., Thompson, F.E., Yaroch, A.L., Ehlers, M., Midthune, D., Williams, G.C., Greene, G.W. and Nebeling L. (2008), "Social desirability trait influences on self-reported dietary measures among diverse participants in a multicenter multiple risk factor trial", *The Journal of Nutrition*, Vol. 138 No. 1, pp. S226-S234.
- Herman, D.R., Harrison, G.G. and Jenks, E. (2006), "Choices made by low-income women provided with an economic supplement for fresh fruit and vegetable purchase", *Journal of the American Dietetic Association*, Vol. 106 No. 5, pp. 740-744.
- Inglis, V., Ball, K. and Crawford, D. (2005), "Why do women of low socioeconomic status have poorer dietary behaviours than women of higher socioeconomic status? A qualitative exploration", *Appetite*, Vol. 45 No. 3, pp. 334-343.
- Instituto Brasileiro de Geografia e Estatística (IBGE) (2010a), *Pesquisa de orçamentos familiares 2008-2009: despesas, rendimentos e condições de vida*, IBGE, Rio de Janeiro.
- Instituto Brasileiro de Geografia e Estatística (IBGE) (2010b), "Sinopse do censo demográfico 2010: Campinas – SP", available at: www.ibge.gov.br (accessed June 14, 2011).
- Jang, S., Ham, S. and Hong, G. (2007), "Food-away-from-home (FAFH) expenditure of senior households in the US: a double-hurdle approach", *Journal of Hospitality and Tourism Research*, Vol. 31 No. 2, pp. 147-167.
- Keelan, C., Henchion, M. and Newman, C.A. (2009), "Double hurdle model of Irish households' foodservice expenditure patterns", *Journal of International Food & Agribusiness Marketing*, Vol. 21 No. 4, pp. 269-285.
- Kim, D. and Leigh, P. (2011), "Are meals at full-service and fast-food restaurants 'normal' or 'inferior'?", *Population Health Management*, Vol. 14 No. 6, pp. 299-305.
- Larson, N.I., Neumark-Sztainer, D., Laska, M.N. and Story, M. (2011), "Young adults and eating away from home: associations with dietary intake patterns and weight status differ by choice of restaurant", *Journal of the American Dietetic Association*, Vol. 111 No. 11, pp. 1696-1703.

- Ling, A.M.C. and Horwath, C. (2001), "Perceived benefits and barriers of increased fruit and vegetable consumption: validation of a decisional balance scale", *Journal of Nutrition Education*, Vol. 33 No. 5, pp. 257-265.
- Marchioni, D.M., Claro, R.M., Levy, R.B. and Monteiro, C.A. (2011), "Patterns of food acquisition in Brazilian households and associated factors: a population based survey", *Public Health Nutrition*, Vol. 14 No. 9, pp. 1586-1592.
- Medeiros, C.O. and Salay, E. (2013), "A review of food service selection factors important to the consumer", *Food and Public Health*, Vol. 3 No. 4, pp. 176-190.
- Miller, T.M., Abdel-Maksoud, M.F., Crane, L.A., Marcus, A.C. and Byers, T.E. (2008), "Effects of social approval bias on self-reported fruit and vegetable consumption: a randomized controlled trial", *Nutrition Journal*, Vol. 7 No. 1, pp. 18-25.
- Mitchell, L. (2004), "US and EU consumption comparisons", in Normile, M.A. and Leetmaa, S.E. (Eds), *US-EU Food and Agriculture Comparisons*, United States Department of Agriculture, Washington, DC, pp. 49-65.
- National Restaurant Association (2005), "Menu trends point to increasing consumer demand for entrée salads, other nutritious options, according to National Restaurant Association", available at: www.restaurant.org/pressroom/press_release?id=997 (accessed June 25, 2012).
- North American Industry Classification System (2007), "2007 NAICS definition: full-service restaurants", available at: www.census.gov/cgi-bin/sssd/naics/naicsrch?code=722110&search=2007NAICSSearch (accessed October 6, 2011).
- Piehotá, P.W., Latimer, A.E., Katulak, N.A., Cox, A., Silvera, S.A.N., Mowad, L. and Salovey, P. (2009), "Tailoring messages to individual differences in monitoring-blunting styles to increase fruit and vegetable intake", *Journal of Nutrition Education and Behavior*, Vol. 41 No. 6, pp. 398-405.
- Rezende, D.C. and Avelar, A.E.S. (2012), "Factors that influence the consumption of the food outside the home in Brazil", *International Journal of Consumer Studies*, Vol. 36 No. 3, pp. 300-306.
- Ross, C.E. and Mirowski, J. (1984), "Socially-desirable response and acquiescence in a cross-cultural survey of mental health", *Journal of Health and Social Behavior*, Vol. 25 No. 2, pp. 189-197.
- Sanches, M. and Salay, E. (2011), "Alimentação fora do domicílio de consumidores do município de Campinas, São Paulo", *Brazilian Journal of Nutrition*, Vol. 24 No. 2, pp. 295-304.
- Satia, J.A., Galanko, J.A. and Siega-Riz, A.M. (2004), "Eating at fast-food restaurants is associated with dietary intake, demographic, psychosocial and behavioural factors among African Americans in North Carolina", *Public Health Nutrition*, Vol. 7 No. 8, pp. 1089-1096.
- Scagliusi, F.B., Cordás, T.A., Polacow, V.O., Coelho, D., Alvarenga, M., Philippi, S.T. and Lancha, A.H. Jr (2004), "Tradução da escala de desejo de aceitação social de Marlowe & Crowne para a língua Portuguesa", *Revista de Psiquiatria Clínica*, Vol. 31 No. 6, pp. 272-278.
- Sorensen, G., Linnan, L. and Hunt, M.K. (2004), "Worksite-based research and initiatives to increase fruit and vegetable consumption", *Preventive Medicine*, Vol. 39 No. 2, pp. S94-S100.
- Stewart, H., Blisard, N., Bhuyan, S. and Nayga, R.M. Jr. (2004), "The demand for food away from home. Full-service or fast food?", Agricultural Economic Report No. 829, Economic Research Service, United States Department of Agriculture, Washington, DC.
- Wardle, J., Parmenter, K. and Waller, J. (2000), "Nutrition knowledge and food intake", *Appetite*, Vol. 34 No. 3, pp. 269-275.

About the authors

Dr Mariana Schievano Danelon, PhD in Food and Nutrition - Faculty of Food Engineering, University of Campinas, Brazil. Masters Degree in Food Science at the University of São Paulo, Brazil. Her research interests include consumer behavior, food choices and healthy eating. She is currently working with public food policies at the Ministry of Social Development and Fight against Hunger – MDS, Brazil. Dr Mariana Schievano Danelon is the corresponding author and can be contacted at: mariana.danelon@ig.com.br

Elisabete Salay is an Associate Professor at the University of Campinas, Brazil, PhD - Ecole des Hautes Etudes en Sciences Sociales, France. The author is a Visiting Scholar at the University of Michigan, Economic Research Service and University of Massachusetts, USA. Main research interest: food and nutrition behavior.

Raw vegetable
salad
consumers

1149

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com