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Research report

Perceptions of university students regarding calories, food healthiness, and the importance of calorie information in menu labelling [☆]



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ABSTRACT

This study investigated Brazilian university students' perceptions of the concept of calories, how it relates to food healthiness, and the role of calorie information on menus in influencing food choices in different restaurant settings. Focus groups were conducted with 21 undergraduate students from various universities. Transcriptions were analysed for qualitative content, by coding and grouping words and phrases into similar themes. Two categories were obtained: *Calorie concept and connection to healthiness*; and *Calorie information and food choices in restaurants*. Calories were understood as energy units, and their excessive intake was associated with weight gain or fat gain. However, food healthiness was not associated to calorie content, but rather to food composition as a whole. Calorie information on restaurant menus was not considered enough to influence food choices, with preferences, dietary restrictions, food composition, and even restaurant type mentioned as equally or more important. Only a few participants mentioned using calorie information on menus to control food intake or body weight. Students' discussions were suggestive of an understanding of healthy eating as a more complex issue than calorie-counting. Discussions also suggested the need for more nutrition information, besides calorie content, to influence food choices in restaurants.

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Introduction

One of many strategies proposed to decrease obesity rates and related chronic diseases worldwide is menu labelling (Burton, Creyer, Kees, & Huggins, 2006; Malik, Willett, & Hu, 2013). In the United States, the Patient Protection and Affordable Care Act of 2010 requires the disclosure of calorie information on menus of all chain restaurants with 20 or more outlets (USA, 2010a). In the United Kingdom, the government's Responsibility Deal (food pledges) includes the provision of calorie information in out-of-home settings (UK, 2011). Similar initiatives have emerged in various countries (McGuffin et al., 2013). In Brazil, big fast-food chains already

disclose calorie information on menus, and some municipal and state regulations on menu labelling are also being implemented (Oliveira, Proença, & Salles, 2012).

The main focus of menu labelling public policies as a way of fighting obesity has been the energy content of food (USA, 2010a; UK, 2010; Oliveira et al., 2012). Although obesity is a multifactorial disease, an imbalance between energy intake and expenditure is commonly cited as its only cause (Hall et al., 2012). However, beyond calorie imbalance, causes of obesity include metabolic-disturbing behaviours and dietary products which promote lipogenesis (Simopoulos, Bourne, & Faergeman, 2013; Wells, 2013).

How calorie information is understood at a deeper level by consumers is yet to be determined. Evidence of consumers wanting calorie information in spite of not understanding the meaning of "calorie" has been uncovered, as well as the infrequent use of this information when eating in restaurants by those who claim to understand the concept (Burton & Kees, 2012; Krukowski, Harvey-Berino, Kolodinsky, Narsana, & DeSisto, 2006; Watson et al., 2013).

Conflicting results have been reported concerning the effect on food choices of calorie information displayed on restaurant menus. Some studies have reported that consumers indeed chose

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lower-calorie options when information was given, but also considered the low-calorie options to be healthier. Other studies, however, have claimed that evidence of calorie information reducing calorie intake or promoting overall healthier choices in restaurants was lacking (Burton et al., 2006; Harnack & French, 2008; Sinclair, Cooper, & Mansfield, 2014; Swartz, Braxton, & Viera, 2011).

It has been suggested that the aim of menu labelling policies should move from the reduction of obesity rates towards healthy eating in general (Loewenstein, 2011), since food healthiness involves food patterns as well as synergistic interactions among nutrients and other food constituents (Simopoulos et al., 2013; Wells, 2013). Healthy eating is much broader and more difficult to define, and not necessarily at odds with reduced caloric choices.

Moreover, not many studies have explored the meaning of calorie information as understood by consumers. Only one qualitative study about consumer understanding of energy terms and its relationship with healthy eating has been identified, but that study focussed only on food product labels. The research with 40 Australian adults revealed that consumers who read the nutrition information on product labels considered higher energy products to be healthier because they provide sustained energy (Watson et al., 2013).

Consumer research studies usually focus on teenagers and adults – not much attention is given to the situation of young adults in their transitional life phase as university students. This period is characterized by the transition from eating with parents at home to planning and preparing their own meals at their new homes (Blichfeldt & Gram, 2013). Such changes may lead to lower consumption of fruits, vegetables, meats and fish; higher consumption of fast food, sugar and alcohol; and weight gain (Papadaki, Hondros, Scott, & Kapsokafalou, 2007; Pelletier & Laska, 2013; Vella-Zarb & Elgar, 2009).

Only one study addressing perceptions and choices of university students who received nutrition information in restaurants was identified. Students who ate at a North-American university canteen which provided information on serving size, ingredients, calorie, sugar, fat, carbohydrate, protein, sodium, cholesterol and trans fat content were surveyed. Most of them (88%) reported that nutritional information could eventually affect their choices; only 39% reported actually using the information. Despite considering the available information to be excessive, students acknowledged that calorie information alone would be insufficient. They stressed the importance of displaying a list of ingredients and fat content (Martinez, Roberto, Kim, Schwartz, & Brownell, 2013).

Few studies were identified which dealt with the issues being proposed here, but using different approaches. Some were quantitative (Lee, Fowler, & Yuan, 2013; Wie & Giebler, 2014; Yang & Heo, 2013), others explored different issues regarding menu labelling (Feldman, Hartwell, & Brusca, 2013) or were conducted with adults in general (Carels, Harper, & Konrad, 2006; Lando & Labiner-Wolfe, 2007).

The aim of the present study was to qualitatively investigate Brazilian adult university students' perceptions of the concept of calories, how it relates to food healthiness, and the importance of calorie information on menus in guiding food choices within different restaurant settings.

Methods

Since the primary interest of this study was to capture the diversity of opinions in specific and uncontrolled contexts (Neutens & Rubinson, 2002), the focus group technique was chosen. Nutrition research frequently employs this technique to explore and understand perceptions, behaviours and attitudes towards food (Feldman et al., 2013; Jones, 2010; Schindler, Kiszko, Abrams, Islam, & Elbel, 2013). Focus groups allow interaction and in-depth discussions, which in turn provide richer data than those obtained by

surveys or individual interviews (Krueger & Casey, 2009; Sofaer, 2002).

Participants were recruited using student mailing lists from Universities in a state capital in Southern Brazil. Online advertisements contained a link to the registration form, allowing eligible students to be contacted by the research team. Participants were required to be Portuguese-speaking undergraduates aged over 20 years, who eat out at least once per week, and are not enrolled in any kind of food or nutrition programme. Groups were designed to include four to eight participants and additional students were enrolled to compensate for withdrawals. Recruitment was discontinued once the same themes continued to emerge across groups and when participants no longer contributed new themes to the overall discussion (Krueger & Casey, 2009). This occurred after the third group, and even then one more group was conducted to ensure complete data saturation. All students provided informed consent before participating. Research protocol was approved by the institution's Ethics Committee.

Focus groups were conducted in November 2013, with six, five, six, and four participants, respectively, each lasting on average 50 minutes. A moderator led all the discussions while two observers took notes. At the beginning of each session, the moderator outlined the aims of the study to the participants, explained how the activity would be conducted and how the data would be managed, assuring confidentiality. Participants were instructed to give honest and straightforward answers about what they thought and did, since as the study was about perceptions, there could be no right or wrong answers. A semi-structured guide (Fig. 1) with open-ended questions was employed (Krueger & Casey, 2009). At the end of each session, participants completed a brief questionnaire about their weight, height and any dietary restrictions.

Audio from the focus groups was recorded and transcribed by the moderator, incorporating notes taken by the observers. Transcription was then analysed for content, with codification only starting after the transcript was carefully read three times by the moderator. Codification consisted of highlighting segments of text that reflected different ideas in order to identify and merge issues into themes and overarching categories (Hsieh & Shannon, 2005; Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). To ensure reliability, categorization was repeated by the moderator one month after the initial codification. Discrepancies between the first and second categorization were reviewed and refereed by a second researcher, and agreed upon by all authors after careful and detailed discussion.

Results

Participants' overall characteristics

Twenty-one students (Table 1) from four different Universities participated in the focus groups. More than half were female (12); 10 had normal BMIs while 10 were overweight. They were enrolled in 13 different undergraduate degree courses. Nearly half reported dietary restrictions (43%), including vegetarianism (60%), lactose intolerance (20%), self-guided dieting for weight control (10%) and avoidance of fried foods (10%).

Categories and themes from focus groups

Data analysis led to themes being organized into two categories: *Concept of calories and their connection with healthiness* and *Calorie information and food choices in restaurants*. Categories, themes and examples of quotes are presented in Table 2.

Concept of calories and their connection with healthiness

Most students defined calories as a synonym for energy or fuel; some related the excessive intake of calories to body fatness and

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