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Consumers' attitude towards rice cooking processes in Korea, Japan, Thailand and France

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ABSTRACT

Concerns and attitudes towards nutrition, health, safety, commodity, and sensory appeal are the factors determining cooking processes in one's everyday life. A picture-word matching task was conducted in order to compare consumer's opinion on seven common rice-cooking processes (rinsing, soaking, adding other kinds of rice, cereals, and beans, brown rice germination, rapid-boiling, pressure-cooking, and steaming) in Korea, Japan, Thailand, and France. The results showed that, in each country, the more familiar a cooking process is, the more it is associated with sensory quality. Pressure-cooking, soaking and rapid-boiling were positively matched with sensory aspects in Korea, Japan, and France, respectively. Although Thai participants had positive beliefs on sensory aspects toward rapid-boiling and steaming process, they haven't been using these two methods frequently because of negative opinion and attitude toward its commodity. Health and nutritional aspects of germination of brown rice and adding other types of rice, cereals, and beans processes were perceived positively among Korean and Japanese participants, and to a lesser extent among Thai participants. The results of this study provided information for better understanding the effect of culture on the representations linked to rice-cooking processes.

1. Introduction

Appropriate food choice and consumption are important for maintaining a good quality of life as well as for physical health. Consumers' food choices are based on different motivations involving complex interaction among the sensory properties of the food itself, liking for particular foods or familiarity with those foods, and environmental, cultural and contextual factors (Furst, Connor, Bisogni, Sobal, & Falk, 1996; Randall & Sanjur, 1981). Food choices also reflect people's personalities and lifestyles (Brunsø, Scholderer, & Grunert, 2004; Lindeman & Sirelius, 2001). To measure the motivations that underlie food choice, Steptoe, Pollard, and Wardle (1995) developed a Food Choice Questionnaire (FCQ). The FCQ includes 36 items that can be subgrouped in nine motivational factors: 'health', 'natural content', 'mood', 'convenience', 'sensory appeal', 'price', 'weight control', 'familiarity' and 'ethical concerns'. Previous studies, based on this questionnaire showed that cultural background has a major impact on motivations underlying consumers' food choice. Especially, Prescott, Young, O'Neill, Yau, and Stevens (2002) observed that price was the most important factor for consumers in Japan, whereas it was the sensory appeal in New Zealand.

Cultural differences in prioritizing the motivation of food choice are related to different values and norms existing in different cultures (Rozin, 1990). According to Rozin (1990), cultural environment has a major influence on human food selection. Rozin (1990) emphasized that from one culture to another the rules and conditions of consumption, food preferences, and food preparation are different. The most important factor underlying these differences might be the folk beliefs embedded in the local mode of perceiving and engaging with the world in everyday life (Herva & Ylimaunu, 2009). Folk beliefs are not based on scientific types of knowledge, but, are relatively stable constructs in people's lives, and guide peoples' behavior through attitudes or motives. In food domain, folk beliefs influence peoples' attitude towards different food products and also have bearings on their purchase and consumption of food (Aarnio & Lindeman, 2004; Lazarou, Kalavana, & Matalas, 2008; Reeves, Halsey, McMeel, & Huber, 2013).

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Actual food consumption requires meal preparation in advance most of the time. Preparation can be made at home or outside. Even though people eat out much recently, hot homemade meals are still considered as proper meals (Murcott, 1995; Mäkelä, 2000). Accordingly, consumers' attitudes towards meal preparation have been studied. However these studies were focused on convenience related behavior (Ahlgren, Gustafsson, & Hall, 2004; Candel, 2001; Jaeger & Meiselman, 2004; Verlegh & Candel, 1999). While convenience seems to be one of the key factor in meal preparation, other aspects should not be neglected. Insights into people's attitude on cooking and preparation processes of a selected food are important to better understand consumers' food-related behaviors.

The taste and nutritional value of a food can be changed not only by changing food ingredients, but also by adjusting cooking techniques (Kostas, 1997). For example, low fat dishes can be obtained by using cooking devices such as nonstick pans, iron skillet, and steamers, and by using methods such as boiling, grilling, or roasting. However, having these kinds of knowledge does not always lead people to use them. Kemm (1991) insisted that this fact might be due to the opposition between 'know how' and 'know what' knowledge: To select certain cooking practice for obtaining desired benefits, cooking skills are required. Malle and Knobe (1997) also pointed out that given intention to act, skill is required for an action to be performed. Indeed, empirical researches showed that a lack of cooking skill was one of the main barriers to improving healthy eating in older men (Hughes, Bennett, & Hetherington, 2004) and to preparing real vegetarian meal (Schösler, de Boer, & Boersema, 2012). As cooking skill is transmitted from one generation to another by cultural transmission (Bowen & Devine, 2011), cultural differences can be shown in cooking skills. Accordingly, a cooking skill commonly practiced in one culture might be considered difficult to apply in another culture.

Rice, which is consumed globally from Oriental to Western countries, can be a good example of a food product which is prepared differently depending on the regions with different eating habits (Hatae et al., 1997; Juliano, 1985; Suwansri, Meullenet, Hankins, & Griffin,2002) which impact sensory and nutritional value (Ahromrit, Ledward, & Niranjan, 2006; Bett-Garber, Champagne, Ingram, & Mc Clung, 2007; Champagne et al., 2008; Crowhurst & Creed, 2001; Rewthong, Soponronnarit, Taechapairoj, Tungtrakul, & Prachayawarakorn, 2011). In this research, seven rice preparation and cooking methods were examined: rinsing, soaking, brown rice germination, adding other types of rice, cereals, and beans, boiling, steaming, and pressure-cooking. Rice cooking can be preceded by rinsing and soaking (letting the rice absorb water before cooking it). Rinsing helps to remove dirt or chemical residues coming from rice planting such as arsenic (Mihucz et al., 2007; Sengupta et al., 2006). Soaking softens the grains and facilitates water uptake during cooking which makes it possible to save energy by shortening the cooking time and to cook uniformly (Santos, De, Umali, Mananes, & Abanto, 1980; Sowbhagya & Ali, 1991). With increased health awareness, healthier ways of eating rice are promoted these days. One of these streams is having whole-grain rice, mixed-grains and beans to get various nutrients from different resources (Juliano, 1985; Kim, 2010; Solomon & William, 2003). Moreover, the nutritional superiority of germinated brown rice is also highly promoted for its greater amount of naturally-occurring amino acid, gamma-amino butyric acid (GABA), which is well-known for its health benefits (Ohtsubo, Suzuki, Yasui, & Kasum, 2005; Tian, Nakamura, Cui, & Kayahara, 2004). Germination can be stimulated by soaking brown rice in water for an extended period of time before cooking it (Komatsuzakia et al., 2007). Rice should be heated along with water to make it completely gelatinized (Juliano, 1985) and this process can be achieved with different methods (Ishige, 2001). Rice can be heated in a large amount of water, so called rapid-boiling in this paper, the starch will be entirely gelatinized and some of the boiling water is discarded and the remainder is set over a low flame, so that part of the water is absorbed by the rice and the other part evaporated as steam. Or rice can be boiled with a precise quantity of water (1.5–2 times the weight of rice) until all the water is absorbed. This method can be applied with normal pots, electric rice cookers, or pressure pots. Also, rice can be cooked by steaming, especially for glutinous rice, as it prevents the rice grains from turning pasty and sticking fast together.

The objective of the present study was to better understand the effect of culture on people's attitudes toward cooking methods and processes. More specifically we aimed to clarify attitudes towards various rice cooking practices in four countries (Korea, Japan, Thailand, and France) with different cooking skills, eating habits, geographical, historical, and social environments. We expected participants from different cultural backgrounds to have different representations towards seven rice preparation and cooking methods in terms of the nutritional, sensorial, health, safety, and commodity benefits. Although qualitative methods such as focus group discussions or in-depth interviews (Krueger, 1988) are frequently used to investigate people's beliefs and attitudes, these techniques are not always easy to use in cultural comparison studies as the original meaning might be lost during translation processes. To overcome this problem, a picture-word matching task can be used alternatively. Giving a visual representation of an abstract object to a respondent and asking him or her to match this visual representation with words could give relatively unrestricted access to their attitudes towards the abstract object. By investigating people's beliefs and attitudes on different rice cooking practices via such an indirect associative technique, expression of respondents' minds can be facilitated (Bajo, 1988; Glaser, 1992; Kiefer, 2001).

2. Material and methods

2.1. Participants

A total of 195 participants were recruited for the experiment in four different countries: Korea, France, Thailand and Japan. In each country, we recruited participants living in cities (Seoul in Korea; Tokyo and Tsukuba in Japan; Bangkok in Thailand and Dijon in France). All the participants were women who had the responsibility of meal preparation at home and who cooked rice at least once per week. Table 1 shows details of the participants in each country.

2.2. Pictures and words

A picture-word matching task was used to access both positive and negative aspects related to rice-cooking processes. The task consisted in presenting pictures one by one to the participants and asking them to match each picture with a series of words among the presented words and to explain their choice. The presented words were chosen so as to represent the five main dimensions involved in rice cooking: nutrition, sensory appeal, health, safety, and commodity.

Seven cooking processes and twenty-six words involved in rice cooking were selected after discussion with researchers from different cultural backgrounds. These were selected in English, and then translated into each country's native language by native speakers (Annex 1). Back-translation technique was used (Brislin, 1970; Maneesriwongul & Dixon, 2004) in order to ensure the similitude between the words used in the four countries. Fig. 1 shows the pictures we used to represent the seven cooking processes: rinsing, soaking, brown rice germination, rapid-boiling, steaming, high pressure, and adding other kinds of rice, cereals, and beans.