

Research Report

# Rice and sushi cravings: A preliminary study of food craving among Japanese females

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## Abstract

The aim of the present study was to develop a preliminary version of the Food Craving Inventory for Japanese (FCI-J) and to investigate the phenomenon of food craving among Japanese females. One hundred and eighty-five female college students completed newly developed FCI-J. Factor analysis yielded conceptual factors that were interpreted as sweets, snacks, western foods, sushi, and rice. Test–retest and internal consistency analyses indicated a good reliability for both total score and score of subscales. In addition, results showed that the FCI-J has a good content, concurrent, construct, and discriminant validity. It is noteworthy that “rice craving” may be characteristic among Asian rice consuming countries, and that there are considerable “sushi cravers” in Japan. These findings suggested that the craving for some kind of food is influenced by the tradition of food products and cultures.

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*Keywords:* Food craving; Rice craving; Sushi cravers; Japanese

## Introduction

Food cravings were found to be frequently associated with binge eating (Gendall, Joyce, Sullivan, & Bulik, 1998). Binge eating is defined as the consumption of large amounts of food in a short period of time (American Psychiatric Association, 1994). Bruce and Agras (1992) reported that binge eating occurs in healthy people and eating-disordered groups. Models of binge eating have included food cravings as a potential trigger for overeating (Gendall et al., 1998).

The measurement of specific food cravings has suggested to may be useful in the assessment of eating patterns among binge eating disorders. For example, White and Grilo (2005) argued that obese patients with binge eating disorder may crave sweets to a heightened degree relative to other food classes. The assessment of specific food cravings and their consumption is an important objective, because it has strong implications for obesity and related health problems.

The majority of people have experienced cravings for sweet snacks, candy, or desserts. Several studies found that chocolate is the food mostly craved by women among the sweets (Hill & Heaton-Brown, 1994; Rozin, Levine, & Stoess, 1991; Zellner, Garriga-Trillo, Rohm, Centeno, & Parker, 1999) and carbohydrate is another major target for cravings (Christensen & Pettijohn, 2001; Hill, Weaver, & Blundell, 1991). Overweight people have frequently reported carbohydrate cravings (Paykel, Mueller, & Vergne, 1973; Wurtman, 1988; Wurtman & Wurtman, 1986).

It is known that different cultures tend to eat different foods, and that people like the foods in their own country. For example, the Spanish greater liking for white chocolate is consistent with its greater frequency in Spain (Zellner et al., 1999). Japanese young females like white chocolate a little, and they also consumed white chocolate a little (Komatsu & Shimai, 2006). Therefore characteristics may differ between Western countries and Japan.

The present study aims to develop a preliminary version of the Food Craving Inventory for Japanese (FCI-J) and to investigate the phenomenon of food craving among Japanese females.

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## Methods

### Overview

Packets of questionnaires were administered to three samples (total  $n = 360$ ). Participants completed the questionnaires in small groups. For each administration, the content of the questionnaires varied, as described below.

### Participants

Each of the three samples comprised female undergraduate students, who volunteered to take part in the study. The mean age of the first sample ( $n = 238$ ) was 18.6 (SD = 0.7) years. The second sample ( $n = 30$ ) was 21.3 (SD = 1.4) years. The third sample ( $n = 92$ ) was 18.4 (SD = 0.7) years. The study was conducted between April 2006 and July 2006. Before the survey, all participants were explained the purpose of the survey for research; the subjects were informed that they can refuse to answer the survey if they do not agree to participate in the research. After completing the questionnaire, participants were compensated.

## Materials

### Sample 1

The purpose with the first sample was to develop the FCI-J, examine the factor structure of the FCI-J and internal consistency, and to investigate the phenomenon of food craving. Participants were given a questionnaire about food craving below. The questions for food items concerning food craving were newly developed based on the FCI (FCI; White, Whisenhunt, Williamson, Greenway, & Netemeyer, 2002) and named as a FCI-J. On the top of the questionnaire, the following instructions were appeared: “A craving is defined as an intense desire to consume a particular food (or food type). And this desire is so strong that the person feels difficulty to resist.” Then, the question was come: “Over the past month, how often have you experienced a craving for the food listed below?” For these questions, the participants were required to response using a five-point scale, with 0 indicating (*never*) and 4 being (*always/almost every time*). The original version of the FCI had 28 food items, which were classified into four factors; high fats (fried chicken, sausage, gravy, fried fish, bacon, corn bread, hot dog, and steak), sweets (brownies, cookies, candy, chocolate, donuts, cake, cinnamon rolls, and ice cream), carbohydrates/starches (rolls, pancakes or waffles, biscuits, sandwich bread, rice, baked potato, pasta, and cereal), and fast-food fats (hamburger, French fries, chips, and pizza). Based on this original FCI, the initial version of the FCI-J (47 items) was developed. At first, 10 food items (gravy, fried fish, corn bread, brownies, cinnamon rolls, rolls, pancakes or waffles, baked potato, cereal, and french fries) that appeared to be

unfamiliar to the Japanese were excluded. Then, 29 new food items (tempura<sup>1</sup>, nankotsu<sup>2</sup>, tonkatsu<sup>3</sup>, Chinese noodles, nuts, curry, yakiniku<sup>4</sup>, pudding, cream puff, manju<sup>5</sup>, dango<sup>6</sup>, ochazuke<sup>7</sup>, mochi<sup>8</sup>, nigiri-zushi<sup>9</sup>, udon<sup>10</sup>, soba<sup>11</sup>, donburi<sup>12</sup>, okonomiyaki<sup>13</sup>, takoyaki<sup>14</sup>,

<sup>1</sup>Tempura refers to classic Japanese deep fried batter-dripped seafood and vegetables.

<sup>2</sup>Chicken cartilage. It is a Japanese type of skewered chicken, *yakitori*.

<sup>3</sup>It is a popular dish in Japan. It consists of a breaded, deep-fried pork cutlet 1–2 cm thick and sliced to bite sized pieces, generally served with shredded cabbage. (Tonkatsu (July 5, 2007, 08:42 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Tonkatsu>.

<sup>4</sup>Grilled meat. It is a Japanese language which refers to grilled meat dishes.

<sup>5</sup>Jellied bean paste. It is a popular and traditional Japanese confection. There are many varieties of manju, but most have an outside made from flour, rice powder and buckwheat and an inside filled with a red bean paste. (Manju (April 6, 2007, 08:33 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from [http://en.wikipedia.org/wiki/Manju\\_%28food%29](http://en.wikipedia.org/wiki/Manju_%28food%29).

<sup>6</sup>It is a Japanese dumpling made from *mochiko* (rice flour), related to *mochi*. It is sticky and filling. It is often served with green tea. (Dango (June 6, 2007, 00:11 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Dango>.

<sup>7</sup>It is a simple Japanese dish made by pouring green tea, *dashi*, or hot water over rice roughly in the same proportion as milk over cereal, usually with savory toppings. (Ochazuke (April 14, 2007, 18:56 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Ochazuke>.

<sup>8</sup>It is a Japanese rice cake made of glutinous rice pounded into paste and molded into shape. (Mochi (July 12, 2007, 06:13 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from [http://en.wikipedia.org/wiki/Mochi\\_%28food%29](http://en.wikipedia.org/wiki/Mochi_%28food%29).

<sup>9</sup>The most typical form of *sushi* in restaurants. It consists of an oblong mound of *sushi rice* that is pressed between the palms of the hands, with a speck of *wasabi* and a thin slice of topping called (*neta*) draped over it. This is possibly bound with a thin band of *nori*, and is often served in pairs. (Sushi (July 11, 2007, 17:16 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Sushi>.

<sup>10</sup>It is a type of thick wheat-based noodle popular in Japanese cuisine. (Udon (July 2, 2007, 12:08 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Udon>.

<sup>11</sup>Soba is a type of thin Japanese noodle made from buckwheat flour. It is served either chilled with a dipping sauce, or in hot broth as a noodle soup. (Soba (June 11, 2007, 21:38 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Soba>.

<sup>12</sup>Donburi is also frequently abbreviated as “don”. It is a Japanese “rice bowl dish” consisting fish, meat, vegetables or other ingredients simmered together and served over rice. Donburi meals are served in oversized rice bowls also called *donburi*. (Donburi (May 1, 2007, 01:04 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Donburi>.

<sup>13</sup>Okonomiyaki is a pan-fried Japanese dish cooked with various ingredients. *Okonomi* means “what you like” or “what you want” and *yaki* means “grilled” or “cooked”. Thus, the name of this dish means “cook what you like, the way you like”. In Japan, okonomiyaki is usually associated with the Kansai or Hiroshima areas. Toppings and batters tend to vary according to region. (Okonomiyaki (July 12, 2007, 05:34 UTC). In *Wikipedia: The Free Encyclopedia*. Retrieved from <http://en.wikipedia.org/wiki/Okonomiyaki>.

<sup>14</sup>Takoyaki (literally fried or baked octopus) is a popular Japanese dumpling made of batter, diced octopus, tempura scraps (*tenkasu*), pickled ginger, konnyaku, and green onion, topped with okonomiyaki sauce, green laver (*aonori*), mayonnaise, and katsuobushi (fish shavings), originated in Osaka. (Takoyaki (June 28, 2007, 03:31 UTC). In *Wikipedia:*

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