



Contents lists available at ScienceDirect

## Food Control

journal homepage: [www.elsevier.com/locate/foodcont](http://www.elsevier.com/locate/foodcont)

## Sanitation management of cooks in childcare centers in South Korea according to working duration and the type of childcare center: Importance-Performance Analysis

Hae-Ryun Park <sup>a, b, 1</sup>, Hee Mang Kim <sup>a, 1</sup>, Youngmi Lee <sup>a, b</sup>, So Yeon Jeong <sup>b</sup>,  
Young Suk Lim <sup>a, \*</sup>

<sup>a</sup> Department of Food and Nutrition, Myongji University, Yongin 17058, South Korea

<sup>b</sup> Yong-in Center for Children's Foodservice Management, Yongin 17058, South Korea

## ARTICLE INFO

## Article history:

Received 27 May 2016

Received in revised form

14 October 2016

Accepted 30 October 2016

Available online xxx

## Keywords:

Childcare centers

Food service

Sanitary management

Importance-Performance Analysis

## ABSTRACT

This study was performed to obtain preliminary data for improving the quality of food service sanitary management in childcare centers by investigating the factors to be managed by priority and finding related personnel education strategies using Importance-Performance Analysis (IPA) and IPA Grid analysis in South Korea. A survey using a self-administered questionnaire was conducted with the cooks at all 190 childcare centers registered in Yongin City Center for Children's Food Service Management. Among 123 questionnaires collected, 115 were used for the final analysis. The questionnaire consisted of 15 questions using a structured 5-point Likert scale, based on 4 areas of individual sanitation, food ingredient sanitation, production sanitation, and facility equipment and kitchen utensil sanitation. The priority items to be managed was determined as 'unable to work when having symptoms of vomiting, diarrhea or wounds on hands' by IPA Grid analysis. Sanitation management was perceived to be less important by those cooks having worked for more than 10 years as opposed to those having worked for less than 10 years ( $p < 0.05$ ). Both perceived importance and performance scores in sanitary management of those working at home-type childcare centers were significantly lower than those working at national or public childcare centers ( $p < 0.05$ ) in the area of food ingredient sanitary management. In conclusion, there were substantive differences in the importance and performance levels of the sanitary management of cooks depending on their working duration and the type of childcare center they were employed at. The results suggest a need to prioritize education and support programs customized for cooks working at home-type childcare centers along with those with relatively long careers.

© 2016 Elsevier Ltd. All rights reserved.

## 1. Introduction

Systematic sanitation management is essential in the food service industry and related studies have been conducted in various ways (Costa Dias et al., 2012; Cusato et al., 2013; Felicio et al., 2013; Gomes, Lemos, Silva, Hora, & Cruz, 2014; Lockis et al., 2011). The application of measures to ensure hygienic conditions during milking and dairy processing, such as HACCP, Codex, and GMP (good manufacturing practices), guarantees safe food consumption

of consumers by preventing contamination with various hazardous components during processing. These efforts of food industry could improve consumers' preference and satisfaction for foods (Gomes et al., 2014; Lockis et al., 2011) and, moreover, foods produced with food safety systems are competitive in the market (Cusato et al., 2014; Cusato et al., 2013).

Recent research on sanitary management of food handlers has been carried out in various food service businesses such as universities (Abdullah Sani & Siow, 2014), hotels (Blešić et al., 2014), hospitals (Cohen, Coleman, & Kangethe, 2016), schools (da Cunha et al., 2013), and childcare centers (Staskel, Briley, Field, & Barth, 2007). These studies have pointed out that food sanitation management and safety systems are essential to guaranteeing the quality of food service. Enke, Briley, Curtis, Greninger, and Staskel (2007) also pointed out that quality management procedures

\* Corresponding author. Department of Food and Nutrition, Myongji University, Myonji-ro 116-gil, Cheoin-gu, Yongin, South Korea. Tel.: +82 31 330 6204.

E-mail address: [victorylim@mju.ac.kr](mailto:victorylim@mju.ac.kr) (Y.S. Lim).

<sup>1</sup> Both authors contributed equally to this work.

influence food safety practices at childcare centers. Accordingly, sanitary knowledge, beliefs, and practice of food handlers are very important factors in sanitation management in food service (Clayton, Griffith, Price, & Peters, 2002; Monteflor et al., 2006).

In South Korea, the number of childcare centers has increased in recent decades, from 3690 in 1991 to 43,742 in 2014 (Ministry of Health and Welfare, 2014) due to the increase in the number of working mothers.

Infants and children are usually provided with lunch and two snacks each day in childcare centers (Song & Kim, 2009). Consequently, the meals currently provided in childcare centers have become more and more important for children's health, in comparison with meals in the past when children were cared for by their mothers or grandmothers, mostly at home (Ryu & Park, 2002). Therefore, sanitary management in childcare centers is essential and should be administered by trained professionals.

However, there has been a lack of a systematic support system for nutritional, sanitary and safety management at childcare centers (Korea Health Industry Development Institute, 2003; Lee & Oh, 2005) and consequently, nutrition or sanitation-related accidents at childcare centers have been increasing (Korea Health Industry Development Institute, 2003; Lee, 2006). Currently, the Korean Food Sanitation Act (2012) does not require small-sized childcare centers with fewer than 50 children enrolled to be registered as 'food service facilities', which could lead to improper nutrition and sanitary management in food service practices.

Korean childcare centers have diversified into home-type, private, workplace facilities as well as national or public facilities. Among them, the proportion of small-sized childcare centers makes up 87.2% of all childcare centers nationwide (Ministry of Health and Welfare, 2014). The majority of them are home-type centers (51.9%, Ministry of Health Welfare and Family Affairs & Korea Center for Disease Control and Prevention, 2015). Thus, sanitary management in these childcare centers are at greater risk in that registered dietitians are not required to be placed legally in those childcare centers. Furthermore, registered cooks were employed in only 65.3% of childcare centers (Ministry of Health and Welfare, 2014) and most of the superintendents did the cooking by themselves in those childcare centers without registered cooks (Ministry of Health Welfare and Family Affairs & Korea Center for Disease Control and Prevention, 2014). Such a food service environment can lead to serious sanitary problems in food service provided by small-sized childcare centers (Kim, Oh, & Han, 2014; Kwak, 2006).

Therefore, this study aimed at investigating the attributes of cooks in sanitary management and determining the priorities of the factors to be improved in each individual, ingredient, production, and facility equipment and kitchen utensil sanitary management area. In addition, we investigated whether there were any differences in the perceived importance and practice level of sanitary management among cooks at childcare centers according to their working duration and type of childcare center. The study results are useful as preliminary data for developing education and support programs customized according to the characteristics of cooks working in childcare centers.

## 2. Materials and methods

### 2.1. Research subjects and development of questionnaire

A survey using a self-administered questionnaire was conducted with the cooks at all 190 childcare centers registered at Yongin City Center for Children's Food Service Management. The Center for Children's Food Service Management, established based on the "Special Act on Children's Eating Habit Safety Management" (2014),

supports sanitary and nutrition management of food service provided by childcare centers where dietitians are not placed. The survey was conducted from April 16 to August 24, 2015. Among the 123 questionnaires collected, 115 were used for final analysis, excluding unreliable responses. The study plan was reviewed in its entirety by the 00 University Institutional Review Board in 2015.

The questions were from the items in the checklist of sanitation and safety management at childcare centers provided by Ministry of Food Drug Safety (MFDS, 2011). The questionnaire was comprised of questions about the perceived importance and the performance level of each step of sanitary management using the IPA methods (Importance-Performance Analysis; IPA). The used instrument was comprised of 4 category groups: individual sanitation, food ingredient sanitation, and facility equipment and kitchen utensil sanitation, measured on a five-point Likert scale, with answers range from 1 to 5 with the former being "not important at all (not practicing at all)" and the latter, "very important (practicing very well)". If there was not a cook employed at the facility, the person responsible for cooking answered the questionnaire.

### 2.2. IPA method in food service evaluation

IPA was developed as a technique for relating the measurement of attributed importance-performance to the development of marketing programs (Sethna, 1982). Importance-performance ratings are usually obtained from a 4 or 5 point scale, "extremely important/practicing very well" to "not important at all/not practicing at all". Attributes are compared or classified according to the relative importance and performance ratings. The IPA technique is also categorized into quality attributes in an IPA Grid. The IPA is a tool used in two ways (A) by service quality measurement methods (Ennew, Reed, & Binks, 1993) or (B) was used for component evaluation of the marketing program (Dolinsky, 1991; Martilla & James, 1977), and to identify the factors in the business field to be improved by priority (Oh, 2001). Various studies using IPA techniques addressed service quality evaluation such as in the restaurant industry (Tzeng & Chang, 2011), an evaluation of the tourism service (Go & Zhang, 1997), of the service quality of spa hotels (Blešić et al., 2014), of lecture evaluation (Alberty & Mihalik, 1989), of marketing services in health centers (Dolinsky & Caputo, 1991), of tourist satisfaction (De Nisco, Riviezzo, & Napolitano, 2015), of hospital information systems from the nurses' perspective (Cohen et al., 2016), and recently, of sanitation management in childcare centers or food service institutes (Seo & Shanklin, 2006), et cetera. IPAs are also used as tools to evaluate the importance and performance of food service quality attributes in the provision of food service (Seo & Shanklin, 2006) and of the task of dietitians in public health nutrition areas (Park, Cha, & Lim, 2008).

### 2.3. IPA Grid analysis

For an IPA Grid analysis of the importance and performance of sanitary management, the performance of 15 items of sanitary management was put on the x-axis and the importance on y-axis. Coordinates (x, y) for each item was marked with a dot, and the mean value of importance was set as a reference value of the y-axis while that of performance was set as a reference value on the x-axis for grouping into 2 groups, low and high scores.

### 2.4. Data analysis

General characteristics of subjects were presented with descriptive statistics. The difference between the perceived importance and the performance level of subjects for each sanitary

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات