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Prerequisites for effective official food control

Tiina Läikkö-Roto [a, *], Janne Lundén [a], Jaakko Heikkilä [b], Mari Nevas [a]

[a] Department of Food Hygiene and Environmental Health, Faculty of Veterinary Medicine, P.O. Box 66, 00014, University of Helsinki, Finland
[b] Natural Resources Institute Finland (Luke), Economics and Society, Latokartanonkaari 9, 00790, Helsinki, Finland

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ABSTRACT

We studied the prerequisites for official food control and their relation to the quality of controls by using 17 Finnish municipal food control units as our sample. Based on our results, units invest in creating adequate working conditions through the provision of guidance papers, pre forma templates and possibilities for staff to collectively hold discussions. However, poor orientation, tacit knowledge and incomplete commitment among staff to quality systems remain as challenges in the units. Insufficient human resources and the inability of heads of food control units to recognize problems in the workplace setting may impair the functional capacity of units. Poor workplace atmosphere and weaknesses in organization of work may also be reflected in food businesses operators' lesser appreciation toward official food controls.

1. Introduction

Legislation and official controls represent fundamental components of effective food control and the production of safe food. The foundation of official food control is situated in food law, providing the needed authority for official activities and for those who carry these out. In Finland, municipal food control authorities are responsible for official controls in the majority of various types of food premises (Food Act 23/2006). In accordance with the Food Act (23/2006), these authorities consist of a board or other multimember bodies named by municipalities. The multimember bodies commonly delegate their authority to the heads of the environmental health and food control units. Delegation of authority in addition to other food control officials in the units varies.

Alongside the legislative authority, control authorities need sufficient and appropriately trained staff as well as adequate facilities and equipment to complete controls. Insufficient resources and a lack of capacity and commitment to the implementation of controls weaken the effectiveness of any law (Vapnek & Spreij, 2005, chap. 5, II.). Motivation and the wellbeing of operative staff on-the-job are essential for high-quality and efficient official food controls. Staff satisfied with their jobs and committed to the working organization also feels more engaged with their work (Høigaard, Giske, & Sundsli, 2012; Powell & Meyer, 2004; Yalabik, Popaitoon, Chowne, & Rayton, 2013). This in turn may result in several positive outcomes both for a specific employee and for the organization as a whole (Schaufeli & Salanova, 2007).

One of the central ideas in official food controls today is that controls are based on risk (EC 882/2004; FAO 2008). Risk-based official controls are thought to result in, among others, increased effectiveness and equality (Nordic Council of Ministers, 2007, chap. 2). Controls should also be based on documented procedures such as control plans to ensure a high quality (EC 882/2004). In Finland, the environmental health and food control units shall compile risk-based food control plans, which include for example the contents and frequency of controls (Food Act 23/2006; Government Degree 655/2006). In addition, food control officials often draft more detailed inspection plans for the specific food premises they are responsible for controlling. The units shall compile and implement quality systems for their controls in order to provide operative staff information and instructions about issues such as their tasks, responsibilities and duties, their work objectives, control methods and techniques and the actions taken following controls (Food Act 23/2006; EC 882/2004). The quality and efficacy of inspections can be further increased by providing operative staff with the specific tools used during inspections, such as checklists for inspections and templates for inspection reports (Läikkö-Roto, Mäkelä, Lundén, Heikkilä, & Nevas, 2015).

The Regional State Administrative Authorities have assessed the human resources for official food controls in Finnish municipal

* Corresponding author.
E-mail address: tiina.laikko@helsinki.fi (T. Läikkö-Roto).

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environmental health and food control units as insufficient (Evira, 2012, 2013, 2014). In order to minimize the impact of this resource shortage, the presence of other important prerequisites for efficient and high-quality official food controls in units remains important. This study aims to examine unit-related factors affecting municipal food controls in Finland. We evaluated both the organization of the actual controls and the workplace atmosphere in units and their relation to the quality of controls. We relied on interviews and electronic questionnaires to collect data. Our results may be used to enhance the quality and efficacy of official food controls.

2. Material and methods

2.1. Data collection

In 2011, we selected 17/79 (21.5%) Finnish municipal environmental health and food control units (henceforth "units") for this study based on their geographic location. Interviews with the heads of the units (henceforth "heads") took place between October 2011 and March 2012. We asked heads to deliver electronic questionnaires for food control officials performing restaurant inspections (henceforth "inspectors") in particular units in November 2011 (partly reported in Läikkö-Roto et al., 2015). We also asked heads to supply the number of food control officials in the units. The data we collected from inspectors included their gender, age and work experience on tasks related to official food controls, the proportion of their working time that they used for the tasks related to official food control and the number of control objects they were responsible for controlling. Heads were asked about the delegation of authority to make legally binding decisions in units. The sufficiency of the facilities and equipment, and the possibilities for vocational training and updating knowledge were examined based on claims using five-point Likert scales. We asked about the existence of guidance papers and templates using a list of answer options. Four-point Likert scales were used to determine the commitment to using these tools and the time spared due to the use of templates. We asked about the correspondence between risk evaluation and inspection plans. We categorized answers regarding the frequency with which the realization rate of planned controls was verified and the actions taken upon poorly realized plans using a range of options. Five-point Likert scales were used to gather information related to perceptions on the regularity and frequency of restaurant controls. We studied management and peer support in units through questions concerning staff meetings and the frequency of discussions about control situations through four-point Likert scales and providing a list of options. We also analyzed the effect of the workplace atmosphere on work efficiency using a scale from 0 to 10. We collected data on the number of food establishments operating in the control areas of the units in 2011 from the data register of the Finnish Food Safety Authority Evira.

In order to compare the views of stakeholders operating within the control areas of the 17 units, we used data from interviews of 83 restaurant business operators (RBOs) (reported earlier in Läikkö-Roto & Nevas, 2014). More specifically, we used variables describing the RBOs' evaluations of the significance of official food control in their restaurants, sum variables created for Finnish school grades that the RBOs gave for inspectors, and sum variables created for the RBOs' evaluation of the impact and quality of official food controls in their restaurants (reported in Läikkö-Roto & Nevas, 2014).

2.2. Statistical analysis

We processed all data using SPSS statistical software (SPSS Statistics 21.0, IBM, USA). The data were stratified based on the inspectors' gender and work experience, and on the number of control objects and food control personnel in the units. We also stratified data for all 17 units. We created sum variables describing the inspectors' perceptions regarding their ability to develop their professional competence during the working hours and the effect of certain negative factors on work efficiency in the units. Normality of the distributions was tested by the Kolmogorov–Smirnov test. The equality of means in the groups was analyzed by t-test when the compared distributions were found to be normal. The Kruskal–Wallis test and the Mann–Whitney U-test were used to compare groups on variables with a range of answers and the sum variables in case of non-normal distributions, while we used the two-tailed Pearson Chi-square test to analyze categorical variables. Cronbach's Alpha was used to examine the reliability of the sum variables we created. Correlations between continuous variables were examined using Pearson's correlation with a two-tailed significance, and Spearman's rank order correlation was used for discrete variables. All responses recorded as "I don't know" were excluded from the analysis, and statistical significance was accepted with a confidence level of 95%.

3. Results

3.1. Background of respondents

We received responses from the inspectors of all 17 units, ranging between 1 and 6 respondents per unit, with a total response rate of 48.7% (56/115). Table 1 presents the background characteristics for the units and inspectors. The inspectors ($n = 55$) used on average 64% of their total working time for official food controls (SD = 25.43%, range 10–100%) and were on average responsible for controlling 155 food establishments (SD = 142.67, range = 12 to 743). The number of food establishments that an inspector was responsible for correlated positively with the proportion of working time they used for official food control (Pearson $r = 0.532$, $p < 0.001$). Six of the 17 units belonged both to the group of units with at least 1900 control objects (henceforth "units with more control objects") and to the group of units with at least 10 officials performing tasks related to official food control (henceforth "larger units").

Heads were authorized to make legally binding decisions in all 17 units. Decision-making authority was also delegated to inspectors in 9/17 units. According to heads, the necessary knowledge and competence to apply the delegated authority was rated as "very well ensured" in 4/17 units, "relatively well ensured" in 8/17 units and "relatively poorly ensured" in 5/17 units. These assessments did not differ depending upon whether authority was also delegated to the inspectors or not.

3.2. Sustaining and enhancing knowledge

A considerable portion of inspectors felt their working time insufficient for familiarizing themselves with new legislation (29.1%) and new guidelines (20.0%) (Fig. 1). The larger the number of control objects inspectors were responsible for controlling, the less sufficient they felt their working hours were for becoming familiar with new legislation (Spearman's $r = 0.304$, $p = 0.025$). Inspectors with more than 10 years of work experience related to tasks of official food control (henceforth "more experienced inspectors") considered their working hours less sufficient for reading legislation and guidance papers to the extent needed for normal control situations than did less experienced inspectors (Mann–Whitney U-test, $p = 0.020$). The inspectors' perceptions concerning their ability to familiarize themselves with new