HACCP SYSTEM DOCUMENTATION PROCESS ACCORDING TO THE OPINION OF THE EMPLOYEES OF BISTRO BARS

Key words: HACCP, documentation, food market, catering services, employees opinion

ABSTRACT

With the growing importance of food safety, there can be noticed an increasing interest of food safety management in food production, trade and services companies. For several years in Poland, there has been noticed a growing trend for eating outside the home. Currently, consumers have a catering service not only to meet their basic nutritional needs, but offered services include a wider scope, as well as a growing group of customers. A good example are petrol stations, where there are bistro bars situated. Catering companies, including bistros at petrol stations, in order to succeed in the market, in the company's strategy must take into account customer requirements and needs as well as implement a quality assurance system. Proper quality is a guarantee of regular customers and the ability to grow and profit. The aim of this article is to present the opinion of bistro bars employees on the requirement of HACCP system documentation process.

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8 Kafel P., Kluczowe czynniki TQM wpływające na wyniki finansowe przedsiębiorstw branży spożywcej, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, nr 815, Kraków 2010
1. RESEARCH MATERIAL

The study was conducted in 2008 in nine provinces, using the survey method with a questionnaire developed for this testing. The selection of regions was not random but there had been selected all provinces in which there were located the most of the stations of selected company. In other provinces the number of stations was very small, so that is why they had not been tested. The study covered bistros of selected network of petrol stations in the number of 210 stations. The study subjects were employees of petrol stations.

There was implemented and maintained HACCP system in the tested bistro bars of the selected fuel company. The menu included: sandwiches, hot dogs, casseroles, and drinks such as coffee and tea. In addition to offering products there were also offered as ready-made supplied products and only served to the customers (cakes, tortillas, sandwiches).

Bistros' employees of fuel stations network were surveyed with an anonymous questionnaire designed to determine their level of knowledge, safety awareness and hygiene of food processing and serving. Respondents were selected randomly from among those who currently were working in bistros. The total number of respondents was 280 people and it obtained a representative sample of the whole population. The correct completed questionnaires replied only 269 respondents. The study was conducted at the stations during the two consecutive months in order to ensure homogeneity of the respondents, due to the level of knowledge of employees and organizational standards in the bistros. The questionnaire survey intended for employees included 22 closed questions and one open-ended question, which allowed to obtain a precise answers. In addition, respondents answered questions categorized due to socio-economic characteristics.

The results obtained in the study were analyzed statistically using multiple methods of analysis of variables, both qualitative and quantitative, including descriptive statistics, statistical inference, and multivariate analysis methods.

THE RESULTS

The characteristics of the social structure of the respondents are presented in Table. 1. Among 269 employees who have properly filled out the survey, the biggest group were women (78%). Taking under consideration the educational level of respondents, the biggest group were people with high school education.

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(46%). In terms of age of the largest group of bistros’ employees were people below the age of 35 (74% in total).

Analyzing the work experience, it was found that the vast majority of people has been working in bistros over 6 years, which may indicate that workers with such experience will have extensive knowledge in the health and safety of food production.

Table 1. Social structure of the respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman</td>
<td>78</td>
</tr>
<tr>
<td>Man</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age:</th>
<th>Percentage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 25</td>
<td>24</td>
</tr>
<tr>
<td>26 - 35 years old</td>
<td>50</td>
</tr>
<tr>
<td>36 - 45 years old</td>
<td>19</td>
</tr>
<tr>
<td>46 - 55 years old</td>
<td>7</td>
</tr>
<tr>
<td>above 55 years old</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education:</th>
<th>Percentage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary</td>
<td>2</td>
</tr>
<tr>
<td>vocational</td>
<td>6</td>
</tr>
<tr>
<td>high school</td>
<td>46</td>
</tr>
<tr>
<td>high-bachelor</td>
<td>21</td>
</tr>
<tr>
<td>high-master</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of work in the bistro:</th>
<th>Percentage [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 1</td>
<td>4</td>
</tr>
<tr>
<td>1 - 3</td>
<td>23</td>
</tr>
<tr>
<td>3 - 6</td>
<td>25</td>
</tr>
<tr>
<td>above 6</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: own research.

Employees of the bistros of selected gas stations were tested in 9 regions of Poland. Quantitative distribution of surveyed workers in the various provinces are presented on Figure 1. Employees have the largest representation in Slaskie region, because in this province there is situated a biggest number of fuel stations of the selected company. It is connected with the Katowice conurbation and a very
high concentration of population in this area. In other provinces the number of surveyed respondents was lower, due to smaller number of petrol stations there.

Fig. 1. The number of surveyed employees in selected regions. Source: own research.

As for the location of the particular stations of the test group regarding the size of the city (Fig. 2), the vast majority (52%) was located in cities with more than 100 thousand residents. A large percentage of stations was also located in cities from 10 to 100 thousand residents.

Fig. 2. Location of stations.
One group of questions that were posed to employees, were questions about the formal operation of the HACCP system and enterprise policy. In the first, employees were asked if in the HACCP system filling out forms confirming the efforts and keeping them for a specified period of time is mandatory. Nearly 98% of employees responded properly, which is not particularly surprising in the company, where is very important to keep records (Fig. 3).

![Pie chart showing 98% and 2% responses.](image)

**Fig. 3.** The employees opinion in the importance of fulfilling and keeping records confirming HACCP system functioning.

It is also noticeable that, however there was only 2% of wrong answers, all of them were selected by women. The rate of correct responses provides a good preparation of employees, and a high awareness of the creation of records and technical functioning of the system.

Employees were also asked about purpose of development and keeping a documentation of the HACCP system, containing four variants of answers. Among them they had to indicate in their opinion all correct options and that is why answers do not sum up to 269 (Fig. 4). The correct responses were variants "a" and "b", and of such a combination correctly replied to this question 61% of
the surveyed employees. Taking into account the multiplicity of answers to some variants, the vast majority of workers indicated at least one correct answer.

Answer "a" have indicated 216 employees, of which 164 in combination with a second right answer "b". It follows that employees in general, properly understand the purpose of development and compiling documentation of the HACCP system, but there are also noticeable voices expressing a negative opinion on the subject. Probably the people who marked answer "c" and "d" expressed its disapproval of the operation of the HACCP system in the enterprise.

Analyzing the distribution of answers to a question concerning the purpose of developing and keeping record versus education of employees in accordance with the expectations it can be observed, that among people with primary and vocational education, responses more often appeared as incorrect (Fig. 5). In the other groups there can be observed an inverse proportion, which may lead to the conclusion that having a higher education level the employee can correctly identify the objective of the development and compiling documentation of HACCP system. This suggests a higher level of knowledge of these workers.
In turn, based on the distribution of answers to the question concerning the purpose of developing and keeping records relative to work experience of employees (Figure 6), it can be observed that only in the case of employees working more than 6 years in business, the ratio of correct to incorrect responses is shaped in 2:1 proportion. Similar proportions are observed in the group of workers with the shortest experience, but the size of this group of workers is very small, so the sample is not representative. In the other groups the distribution of responses is shaped by about 50% of correct and incorrect responses. This finding could suggest that workers with the longest work experience understand the idea of docu-
menting and maintaining a functioning HACCP system in the best way. The verification independence test of the chi-square was found, that there were statistically significant differences in frequency responses due to the work experience of employees.

While the distribution of responses relative to location of the station indicates that the greatest differences in the numbers of correct to incorrect responses can be observed in the case of stations located in cities from 10 to 100 thousand population (Fig. 7).

![Graph showing correct and incorrect answers versus years of work](https://via.placeholder.com/150)

**Fig. 6.** The employees opinion on the purpose of developing and keeping record versus years of work in the bistro. 

*Source: own research.*

In 68% of locations, employees working at stations in cities from 10 to 100 thousand inhabitants correctly answered this question, which is essential information that employees in this group learned the principle of documenting and maintaining the HACCP system. In the case of cities with over 100 thousand pop-
ulation the difference was no longer so clear and it was 54% to 46% of the correct and incorrect responses.

![Bar chart](image)

**Fig. 7.** The employees opinion on the purpose of developing and keeping record versus location of the station/bistro.

Source: own research.

The verification test of the independence of the chi-square was found that there were statistically significant differences in frequency of responses due to the location of the station. By analyzing the distribution of numbers of correct and incorrect responses for development and purpose of record keeping relative to region (Fig. 8), it can be observed that the highest percentage of correct answers was in Dolnośląskie (76%). On the other hand in the regions of Wielkopolska, Mazowieckie, Śląskie and Kujawsko-Pomorskie the correct response rate varied from 63 to 68%. The least employees that understand the idea of documenting and maintain the functioning of the HACCP system are in the Warmińsko-Mazurskie, where, as the only one of surveyed regions, the proportions were reversed from
the others, where the majority of incorrect responses occurred (67%). In the other provinces the majority were correct answers, ranged from 55 to 58% of correct answers.

![Graph interaction of numbers of correct and incorrect responses on purpose of development and compiling documentation relative to the region of Poland](image)

**Fig. 8.** The graph interaction of numbers of correct and incorrect responses on purpose of development and compiling documentation relative to the region of Poland

Source: own research.

In the last question, bistro employees were asked about their opinion on the policy actions of the company and its high level of care for the health safety of produced food (Fig. 9). Surveyed employees had a choice of 5 options for answers that they had sort out by allocating ranks, where 1 rating determines the least impact, and evaluation of 5 the greatest impact. ich may be effectively used to pursue its objectives.

Analysis of employees' opinion showed that the efficiency in conducting its policy, the company achieves by applying the principles of the HACCP system and inspections and audits at stations. In the group of 2 to 3 evaluations, employ-
Employees most often indicated staff training, compliance with procedures and instructions and frequent cleaning of the bistro. A surprising result is the presence of the biggest number of indications in the group of responses, which have the least impact on the effectiveness of the company's policy for variant "e" - inspections and audits at stations, very often this action was shown to be very effective.

Fig. 9. The employees opinion on the policy actions of the company in the range of the food safety.
Source: own research.

Taking into account the overall distribution of responses, it can be seen that the opinions of employees for the actions used to implement the policy of the
company are distributed relatively evenly, which may indicate that there is no only one tool with wh

CONCLUSIONS

1. The employees in general correctly understand the purpose of developing and keeping the records of the HACCP system documentation, but there are also noticeable signals expressing a negative opinion on this subject.
2. Higher education can correctly identify the objective of the development and compiling documentation of HACCP system, and suggests a higher level of knowledge of these employees.
3. The employees with the longest years of working in the company, in a best way understand the idea of documenting and maintaining the HACCP system.
4. The work experience of the employee significantly affect the perception of the idea of documenting and maintaining a functioning HACCP system.
5. The location of gas station with the bistro bar significantly impact on employee perceptions of the idea of documenting and maintaining a functioning HACCP system.
6. According to employees effectiveness in conducting its policy, the company achieved through the application of the HACCP system principles and the checks and audits of bistro bars located at the gas stations.

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REFERENCES