

Knowledge and Attitudes on Food Hygiene among Food Services Staff on Board Ships

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Parole chiave: Sicurezza alimentare, igiene degli alimenti, medicina occupazionale, navi mercantile

Abstract

Background. Ships have long been sites for outbreaks of infectious diseases, particularly gastrointestinal diseases. The ship environment has the potential to facilitate the spread of such diseases, infecting susceptible cohorts of embarked passengers and crew. Gastrointestinal disorders among seafarers are fairly common and usually represent the first or second cause of requests for medical assistance aboard ships in international waters.

Study design. The purpose of this study was to evaluate food safety and the level of knowledge among food service personnel on board merchant ships, where food handlers could be a cause of health problems for all crew members.

Methods. An anonymous self-administered questionnaire containing specific questions about food hygiene and safety knowledge was administered.

Results. The overall score of correct answers for the food safety aspects tested was 51.77 (SD 3.87) out of 76 points, corresponding to 68.12% of questions answered correctly. Food workers who followed a training course showed higher mean knowledge score ($p < 0.05$) compared to not-trained workers. The most relevant significant differences ($p < 0.05$) were noticeable in the personal hygiene, cross-contamination, safe storage, and knowledge of foodborne pathogens sections.

Conclusions. Food services staff on board cargo ships should be adequately trained and should understand basic and fundamental aspects of food hygiene, related pathologies and sanitation, as they are responsible for the health and wellbeing of many seafarers.

Introduction

Every day people around the world get sick of gastroenteritis from the consumption of unhealthy or contaminated food. Unhealthy food is associated with the deaths of an estimated 2 million people annually, including children. Food containing harmful

bacteria, viruses, parasites and chemical substances is responsible for more than 200 different diseases, ranging from diarrhea to cancer (1). World Health Organization (WHO) has identified a series of risk factors associated with foodborne diseases (i.e. cross contamination, low personal hygiene, unsafe storage, etc.) (2). Mishandling of food

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plays a significant role in the occurrence of foodborne diseases. In view of this, proper food handling can prevent most foodborne diseases. These diseases represent a serious problem and cause significant social and economic burden on communities and their health systems. They can also influence the national economy, development and international trade (3, 4).

It is known that most foodborne diseases are preventable with proper food handling, and food professionals play an important role in protecting people from foodborne diseases. Unfortunately, they can also contribute in spreading food poisoning, because they may introduce pathogens into foods during production, processing, preparation, and distribution (5). For this reason, the WHO has long been aware of the need to educate food handlers about their responsibilities for food safety, and introduced the “five keys” to healthier and pathogen-free food (4).

From these observations, it is clear the importance of safe food availability. This is much more important in peculiar living environments, such as on board ships. Ships have long been sites for outbreaks of infectious diseases, particularly gastrointestinal diseases spread also, for example, by water (6). The ship environment has the potential to facilitate the spread of infectious diseases, infecting susceptible cohorts of embarked passengers and crew (7).

The spread of pathogens could be favored by the characteristics of modern fleets, owned by international companies with crews of several nationalities having different sensitivity/culture on hygiene and health protection (8, 9).

Gastrointestinal (GIT) disorders among seafarers are fairly common. GIT disorders usually represent the first or second cause of most requests for medical assistance aboard ships in international waters (10). The outbreaks of foodborne diseases are

dangerous on board of passenger ships because they can involve a large number of people. They can also represent a concern for cargo ships, too. The vulnerable and isolated communities on board cargo ships spend long time at sea, sometimes in remote regions of the World, that is why good sanitary conditions on ships are crucial to guarantee both the health and the welfare of seafarers (11).

Many factors are considered critical for crew's health. Poor hygiene and sanitation in the galley and catering areas of the ship could be a major cause of health problems for seafarers. For this reason it is important to assess the level of knowledge, because starting from the present situation it is possible to better prepare the kitchen staff.

Based on these observations, in 2013 a research survey about food hygiene knowledge on board ships was performed among the workers of 7 tankers of an Italian shipping company (12). The results obtained showed that galley and catering workers group provided a lower percentage of correct knowledge than other crew members (12). In view of this, we have proposed a new and more specific questionnaire to be submitted to food services staff on board cargo ships – that are part of ‘Healthy ship’ project (‘Health Protection and Safety on Board Ships’, an initiative focused on the prevention of diseases on board ships through information campaigns about the major health risks for seafarers and their prevention) (13) - with the aim to evaluate the food safety knowledge level in this particular working categories.

Methods

Study population and data collection: 220 people, the kitchen staff of 110 ships (89 tankers and 21 bulk carriers) received a questionnaire in a sealed envelope containing

a letter explaining the purpose of the survey, and the instructions on how to fill the questionnaire. Participation in the study was anonymous, voluntary and aimed only at the collection of scientific information. After completing the questionnaire, each participant was requested to return it in its original envelope, to be sealed without marking. All closed envelopes were gathered by the captains and then were sent to the epidemiology group of the University of Camerino (UNICAM).

Survey tools: Data collection was carried out through a self-administered questionnaire, similar to a questionnaire distributed to food workers in land-based restaurants (2). The questionnaire was divided in two parts: the first one requesting personal details (gender, age, nationality, educational level, rank), the second with specific questions about food hygiene and safety knowledge. This part included 76 questions, grouped in the 6 sections listed below: (a) Personal hygiene, (b) Safe storage, thawing, cooking and reheating food, (c) Cross contamination, prevention and sanitation, (d) Knowledge of health problems associated with food unsafety, (e) Knowledge of symptoms of foodborne diseases, (f) Knowledge of foodborne pathogens. Possible answers were true/false/not sure. This last possibility was introduced to limit “guess” answers. Before the distribution to food services staff of cargo ships, the questionnaire was validated by a preliminary pilot study performed on 12 food handlers working on board cargo ships. This to assess its face validity (14, 15).

Analysis: Questionnaire answers were analysed using Microsoft Excel sheets. This software was used for data storing and processing. Statistical analysis was performed by the X-Lstat software (15). Descriptive statistics were used to analyze the distribution of variables. Qualitative data were described using frequencies and

percentages. The Chi-square analysis was performed to assess differences between years of experience (0-4.9, 5-10, ≥10), training courses (yes/no), rank (cook/messman). The level of statistical significance was set at $p < 0.05$.

Results

The total number of questionnaires filled-in was 158, with a response rate of 71.8%.

Table 1 shows the demographic characteristics of interviewed workers.

Table 1 - Demographic characteristics of interviewed workers

	n.	%
MEAN AGE		
41.2±10.8 (range 21-64 years)		
GENDER		
Male	158	100.00
Female	-	-
NATIONALITY		
Italian	10	6.3
Indian	58	36.7
Filipino	90	56.9
EDUCATION		
Diploma	34	21.5
High school	82	51.9
University degree	22	13.9
Professional diploma	20	12.6
RANK		
Cook	84	53.1
Messman	74	46.8
TRAINING COURSE		
Yes	130	82.2
No	28	17.7
LENGTH OF EMPLOYMENT		
0-4.9 years	68	43.0
5-9.9 years	44	27.8
≥10 years	46	29.1

Table 2 summarizes the mean knowledge scores for different aspects investigated. The overall score of correct answers for the food safety aspects tested was 51.8 (SD 3.87) out of 76 points, corresponding to 68.1% of questions correctly answered.

“Personal Hygiene” represented the food safety aspect with the highest percentage of correct answers (78.3%), followed by “Cross-contamination” (71.7%). The section “Safe storage, thawing, cooking and reheating” showed 66.5% of correct answers. The lowest percentages of correct answers were found in the sections related to knowledge (health problems, symptoms, pathogens) (Table 2).

Food workers who had followed a training course showed higher mean knowledge

score ($p < 0.05$), compared to non-trained workers (52.9 ± 3.9 vs 46.1 ± 3.4 respectively, out of 76 points) (Table 2). The most relevant significant differences ($p < 0.05$) were observed in the “personal hygiene”, “cross-contamination”, “safe storage”, and “knowledge of foodborne pathogens” sections, whereas knowledge on issues such as, “health problems” and “symptoms” was not significantly different (Table 2).

Considering the years of experience, the highest mean total score was obtained by workers who had 0-4.9 years of experience (54.0 ± 3.8), while food workers with 5-10 and > 10 years of experience had a total score of 49.9 ± 3.8 , and 50.1 ± 3.9 respectively ($p < 0.05$) (Table 2). The main significant differences ($p < 0.05$) were observed in

Table 2 - Knowledge scores about food safety (PH: *Personal hygiene*; SS: *Safe storage, thawing, cooking and reheating of the foods*; CC: *Cross contamination prevention and sanitation*; KHP: *Knowledge of health problems that would affect food safety*; KS: *Knowledge of symptoms of foodborne illnesses*; KFP: *Knowledge of foodborne pathogens*)

Food safety aspects	Total			Rank		Training		Length of employment		
				Cook	Messman	yes	no	0-4.9 years	5-9.9 years	≥ 10 years
	Mean knowledge score (SD)	Possible range of scores	% of correct answers	Mean knowledge score (% of correct answers)						
PH	11.3 (0.9)	0-14	78.3	11.4 (77.7)	11.3 (79.9)	11.5 (79.7)	10.7 (71.4)	11.4 (81.5)	11.4 (74.0)	11.3 (77.6)
SS	9.4 (1.9)	0-14	66.5	9.4 (67.3)	9.4 (65.6)	9.5 (68.2)	8.8 (58.6)	9.8 (70.3)	9.2 (65.9)	9.0 (61.4)
CC	14.5 (3.2)	0-20	71.7	14.4 (72.3)	14.5 (70.9)	14.8 (74.1)	13.0 (60.3)	14.7 (73.9)	13.7 (68.8)	14.8 (71.0)
KHP	6.6 (1.0)	0-10	65.4	6.5 (65.2)	6.7 (65.6)	6.6 (66.4)	6.5 (60.7)	6.6 (66.7)	6.5 (65.0)	6.6 (63.9)
KS	5.6 (1.3)	0-9	62.8	5.8 (64.5)	5.4 (60.9)	5.6 (62.9)	5.6 (62.7)	5.4 (60.1)	5.5 (61.6)	6.1 (68.1)
KFP	5.6 (2.7)	0-9	54.9	5.7 (54.5)	5.6 (55.5)	5.8 (56.9)	4.8 (46.0)	6.0 (65.6)	5.2 (50.0)	5.3 (43.9)
Total	51.7 (3.8)	0-76	68.1	52.0 (68.4)	51.4 (67.7)	52.9 (69.7)	46.1 (60.7)	54.0 (71.1)	49.9 (65.6)	50.1 (66.0)

sections “personal hygiene”, “safe storage”, “symptoms” and “knowledge of pathogens”. No significant differences were found between cooks and messmen.

In terms of knowledge of “personal hygiene”, the items were: 1) after touching money; 2) after eating meals; 3) before preparing meals; 4) after using toilets; 5) after handling raw meats or poultry; 6) after touching the body; 7) during continuous food handling; 8) after touching a clean countertop; 9) after blowing of nose; 10) after cleaning tables; 11) after handling the

garbage; 12) after touching work clothes; 13) wear gloves before touching ready to eat food products; 14) right duration of hand washing). The majority of respondents were able to identify when it is important to wash hands, but 86.0% (n. 136) of interviewed people had the misconception of the need to wash their hands after coming in contact with a clean countertop (item n.8). Our study found that 78.4% (n. 124) of respondents recognized correctly, how long it is necessary to wash their hands, and 79.7% (n. 126) knew the importance

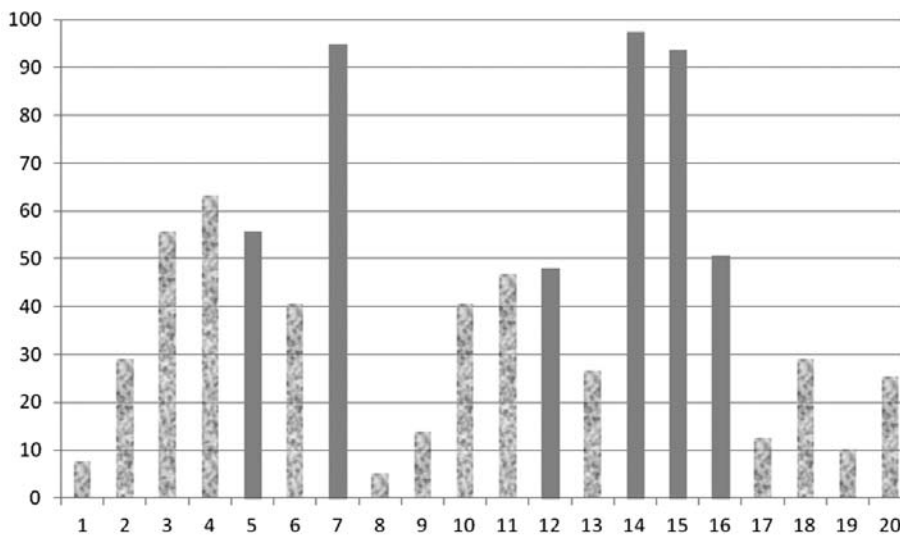


Figure 1 – Percentage of answers for the section “Cross contamination, prevention and sanitation”
 Numerals indicate: 1) Use same knife to cut raw meat or poultry and to chop vegetables; 2) Wash knife used to cut raw meat or poultry with cold water before using it to chop vegetables; 3) Wash knife used to cut raw meat or poultry with hot water before using it to chop vegetables; 4) Wash knife used to cut raw meat or poultry with water and soap before using it to chop vegetables; 5) Wash knife used to cut raw meat or poultry with water and soap then apply sanitizer before using it to chop vegetables; 6) Wipe knife used to cut raw meat or poultry with a piece of cloth before using it to chop vegetables; 7) Change knife to cut raw meat or poultry and to chop vegetables; 8) Use same cutting board to cut raw meat or poultry and to chop vegetables; 9) Wash cutting board used to cut raw meat or poultry with cold water before using it to chop vegetables; 10) Wash cutting board used to cut raw meat or poultry with hot water before using it to chop vegetables; 11) Wash cutting board used to cut raw meat or poultry with water and soap before using it to chop vegetables; 12) Wash cutting board used to cut raw meat or poultry with water and soap then apply sanitizer before using it to chop vegetables; 13) Wipe cutting board used to cut raw meat or poultry with a piece of cloth before using it to chop vegetables; 14) Change cutting board to cut raw meat or poultry and to chop vegetables; 15) Wash surface with water and soap then apply a sanitizer is the most effective method in cleaning and sanitize food contact surfaces; 16) Store vegetables salad in the upper shelf in refrigerator if raw meat or chicken in middle shelf; 17) Store vegetables salad in middle shelf in refrigerator if raw meat or chicken in middle shelf; 18) Store vegetables salad in the lower shelf in refrigerator if raw meat or chicken in middle shelf; 19) Store vegetables salad in meat or poultry refrigerator; 20) Store vegetables salad in upper shelf in the meat or poultry refrigerator.
 (Shaded columns = incorrect practices)

of wearing gloves before touching food products which are ready to eat. Workers who followed a training course showed better knowledge, with correct answers exceeding 90% for items 2-5, and 9-12 of the questionnaire. Those who did not follow a training course showed lower levels of knowledge on many aspects of personal hygiene. In particular, knowledge of hand washing was better in the training course group, mainly referring to items 1, 2, 6, 10, 13, and 14 ($p < 0.05$).

Analyzing answers referred to “cross contamination” topic (Figure 1), the correct practice to “wash knife used to cut raw meat or poultry with water and soap, followed by application of a sanitizer before using to chop vegetables” (question 5) was recognized by 55.7% (n. 88) of the sample (without significant differences between those with or without training course).

The correct practices of changing knife or cutting board for raw meat and vegetables were well known (over 90% of correct answers) without significant differences between those with or without training. Finally, the correct position of storing the vegetables and raw meat in the refrigerator was recognized by 50.6% (n. 80) of respondents, without significant difference between those with or without training course.

Concerning the section related to safe storage, thawing, cooking and reheating of food, the data are shown in Figure 2.

With reference to thawing frozen raw meat or poultry, the correct procedure (in the refrigerator) was indicated by 72.1% (n. 114) (which was the best result) but, in contrast, the two other correct practices (in running tap water, and in the microwave oven) were recognized by less than 50% without

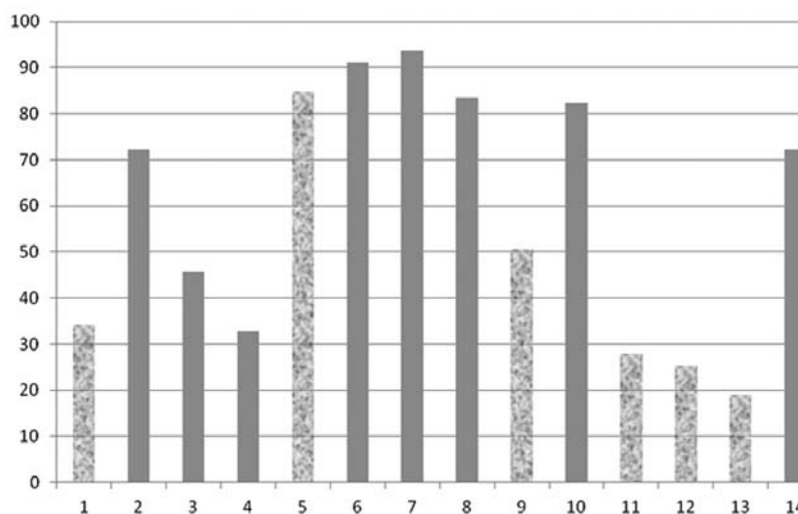


Figure 2. Percentage of answers for the section “Safe storage, thawing, cooking and reheating of food”

Numerals are referred to 1) Thaw frozen raw meat or poultry on the kitchen counter in an open container; 2) Thaw frozen raw meat or poultry in the refrigerator; 3) Thaw frozen raw meat or poultry in running tap water; 4) Thaw frozen raw meat or poultry in the microwave; 5) Thaw frozen raw meat or poultry on the kitchen counter in a covered container; 6) Refrigerator operating temperature is 1-5 °C; 7) Freezer operating temperature is -18 °C; 8) Check poultry is sufficiently cooked by thermometer; 9) Store leftover on steam table; 10) Store leftover in the refrigerator; 11) Store leftover on the countertop or table in the kitchen; 12) Store leftover on the shelf in the kitchen; 13) Store leftover in the oven; 14) Reheat food to temperature of 73 °C.

(Shaded columns = incorrect practices)

significant difference between workers who followed a training course and those who did not (for example, 47.6% vs 35.7%, respectively, for the knowledge about thawing in water). Thawing on the kitchen counter in a covered container (incorrect practice) was considered correct by a large part of respondents, with significant difference between those with training course and those without it (81.5% vs 100%, respectively) ($p < 0.05$). The practice of thawing on the kitchen counter in an open container (incorrect practice) was considered correct by a lower number of respondents. The correct practice to check poultry by thermometer to verify if it is sufficiently cooked was indicated by 83.5% (n. 132) of respondents; the highest percentage was provided by those with a training course, but the difference was not significant. The correct practice of storing leftovers (in the refrigerator) was indicated by 82.2% (n. 130) of the sample (86.1% with training and 64.2% without training – NS). Finally, 72.1% (n. 114) of respondents was aware of the appropriate temperature for reheating leftovers; this practice was less known by those without a training course (50%) vs those with training course (76.9%) ($p < 0.05$).

Apparently, interviewed people had proper knowledge of health problems that could undermine food safety, but a number of respondents recognized hypertension (77.2%, n. 122) and smoking (88.6%, n. 140) as conditions that would affect food safety.

In terms of knowledge of symptoms of foodborne diseases, diarrhea and vomiting were well known (over 95%), followed by abdominal pain (84.8%, n.134), whereas nausea and, in particular, headache were less recognized (77.2% n. 122, and 55.7%, n. 88 respectively).

Knowledge of foodborne pathogens was generally unsatisfactory. Salmonella was the most recognized pathogen (79.7%, n. 126), whereas *Staphylococcus aureus*, *E. Coli O157:H7*, *Bacillus cereus*, *Shigella*,

and Hepatitis viruses were known by less than 60%. The least known pathogens were *Listeria monocytogenes* (39.2%, n. 62), *Campylobacter jejuni* (44.3%, n.70), and *Clostridium perfringens* (45.5%, n. 72).

Discussion

The Maritime Labour Convention 2006 (ILO) has defined the requirements for qualifying a cook on board. In Regulation 3.2 “Food and catering” states that “*seafarers employed as ships’ cooks with responsibility for food preparation must be trained and qualified for their position on board ship*”. In addition, it adds that “*shipowners shall ensure that seafarers who are engaged as ships’ cooks are trained, qualified and found competent for the position in accordance with requirements set out in the laws and regulations of the Member concerned. The requirements under paragraph 3 of this Standard shall include a completing of a training course approved or recognized by the competent authority, which covers practical cookery, food and personal hygiene, food storage, stock control, and environmental protection and catering health and safety*” (17).

Although what is requested in the aforementioned Convention, the findings of this research, despite the overall sufficient knowledge, indicate poor knowledge on some key concepts of food safety.

This study is not easily comparable with other similar surveys because a particular occupational category in the context of seafarers onboard cargo ships in international waters was the focus and data on this specific topic are limited. Moreover, the most relevant studies on this topic have evaluated different aspects involving activity of galley personnel on board cargo ships (eg. evaluation of contaminated surfaces and kitchen items) (18,19). In the first investigation the sample consisted of 100

subjects, the study found an unsatisfactory level of knowledge among workers with the lowest level of education (18). In the second study the level of application of HACCP on “ro-ro” ships was evaluated through a microbiological approach (19). Both studies have emphasized the importance of training food services staff on board ships.

In our work the overall percentage of correct answers was of 69.5%, which is practically the same as what was observed by Osaili (69.4%) (2), and comparable with those of other authors on land-based structures in which higher percentages of overall knowledge compared to ship galley staff was reported (3, 20-22). These observations suggest the necessity of verifying carefully the level of training of people working in the food preparation/service areas on board ships.

Regarding the “personal hygiene” section, responses showed good knowledge of the subject, better than the results of other authors on land-based structures. In particular, in a survey by Yi-Mei Sun, only 40.7% of respondents understood the need of hand washing after blowing the nose (23). Similar findings were reported in another study in which only 40.4% of interviewed people recognized that this cleansing must always be accomplished (23). The worst situation is reported for street vendors of Nigeria, where only 17% of the sample recognized the importance of washing hands after blowing the nose (24). In our study, 92.4% of respondents knew the correct protocol of washing hands after blowing nose, result similar to that obtained on land-based structures (2). The importance of washing hands after handling money is apparently known by 22.9% of the night market food vendors surveyed in Taiwan (23), whereas almost 85% of our sample is aware of this basic hygiene requirement, despite the fact that our respondents don't come into contact with money while preparing and/or handling food.

In a survey conducted among food handlers in Italy, the importance of wearing protective gloves while handling or cooking food was recognized by 69.1%, whereas in our survey 79.7% of respondents understood the significance of wearing protective gloves during food handling and preparation (5). On the other hand, 84.8% of our sample considers appropriate to defrost raw meat out of the fridge, in a covered container, while those who knew the correct defrosting process vary from 32.9% (in the microwave) to 72.1% (in the refrigerator). Other studies showed that 19% of interviewed people defrost frozen raw meat at room temperature (25).

The 72.1% of the sample identified the correct temperature for reheating cooked food. The remaining 27.9% are likely to expose the crew to risks related to microbial growth due to the failure in achieving the expected temperatures. These results are better than those obtained on land-based structures averaging the 19.6% (2), and the 44% (25), and similar to the results reported by another investigation (77.9%) (22).

Slightly more than 50% of the sample thinks that the procedure of washing the knives used to cut raw meat or poultry with just hot water and / or soap before using them to cut vegetables is correct. The correct approach for having sanitized knives and cutting boards requires their cleaning with soap and application of sanitizer. This concept was not known by half of our sample. This suggests a misleading view by a significant percentage of the kitchen staff surveyed, that disregard the risk of spreading germs from raw meat to vegetables, which is a health hazard for the entire ship. Unfortunately this incorrect opinion is shared by a large number of food handlers working on land-based structures as our results are consistent with those obtained by Osaili (2). The results of our survey are better than those of Bolton (only 7.5% knows the right way to wash utensils) (25), but lower

than data reported by Bessa Martins in food handlers of a catering company (90%), and Gomes-Neves in small independent food businesses (73.4%) (3, 20).

Sneezing and coughing were identified as a possible cause of food contamination by the majority of our sample (over 90% of respondents). Vomiting and diarrhea are also considered equally responsible for food contamination by the staff surveyed. On the contrary, fever and sore throat were identified by a smaller group of the sample (83.5% and 77.2%) as a cause of contamination of food items. The comparison of these data with those of other studies raises some interesting observations. It was reported that 31% of food handlers in Romania knew that coughing and/or sneezing is a potential source of food contamination with *Staphylococcus aureus* (26). *Staphylococcus aureus* is a common commensal of the skin and mucosal membranes of humans, with estimates of 20–30% for persistent and 60% for intermittent colonization (27). It was found that fever and sore throat were correctly identified only by 38.3% and 51.2%, respectively, as risk factors for food contamination (2). Another investigation on Portuguese food handlers has found that 86.1% of them does not identify food handlers as a source of food contamination with *Staphylococcus aureus*, while a significant majority knew that diarrhea is the symptom most commonly associated with foodborne diseases (20). Our results are similar to those of another investigation, with the exception of nausea and headache (52% and 33%, respectively) (24).

In terms of knowledge of foodborne pathogens, our results are better than those obtained by Osaili (2), in which *Salmonella* was recognized by only 33.9% of the sample. Another work reported percentages higher than those of our survey (*Salmonella*, 100%; *E. coli* O157, 97.5%; *Listeria monocytogenes*, 84%; *Staphylococcus aureus*, 78%) (25). Higher percentages of

knowledge of foodborne microorganisms (*Salmonella* (84.7%) and *Escherichia coli* (41.1%)) were reported by another investigation on food safety professionals (28).

The moderate number of respondents could suggest a limitation of the study. However, food handlers could represent a major cause of health problems for about 2800 seafarers employed in the 110 ships to whom the questionnaire was distributed. Moreover, this kind of surveys is new for this particular category of workers, and despite the small number of questionnaires, it can give interesting information useful to the improvement of the service, and of the crew safety. Therefore, the training of ship kitchen staff is essential and must begin from the misconceptions and lack of information highlighted in this research survey and other similar studies.

All this, in accordance with the provisions of ILO 2006 (17), and STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers). STCW concerns the training standards, and at Resolution 8 specifies the importance of promoting of technical knowledge, skills and professionalism of seafarers (29).

Conclusion

The general knowledge regarding food hygiene among food services staff on board cargo ships could be considered sufficient, according to our results. Taking into account that this staff is responsible for the health of people working on board ships, it is important that their knowledge is reviewed on a regular basis. The findings that a significant percentage of food services staff doesn't properly understand certain aspects of food handling and food safety (particularly pathogens causing foodborne diseases) are a cause for concern. There is a

relevant difference between the occurrence of foodborne diseases on board ships or ashore. This is due to the difficulty of providing adequate and prompt medical treatment for those at sea. Hence, the overall knowledge and capacity of food services staff, working on board ships should be improved.

Initiatives aimed at refining knowledge of kitchen staff on food hygiene, including continuous monitoring of personnel working in these services (lifelong learning and monitoring) should be considered and promoted. Achievement of a high level of hygiene on board ships should start by creating more awareness on the importance of their role by professionals involved in galley service and by a continuous and adequate education on food hygiene.

Riassunto

Conoscenza e attitudini del personale di bordo addetto al servizio di ristorazione nei confronti dell'igiene alimentare

Introduzione. L'ambiente della nave ha il potenziale di facilitare la diffusione di malattie infettive, coinvolgendo coorti suscettibili di passeggeri e membri dell'equipaggio. I disturbi gastrointestinali tra i marittimi sono piuttosto comuni e rappresentano la prima o la seconda causa della maggior parte delle richieste di assistenza medica da parte di navi in acque internazionali.

Metodi. È stato utilizzato un questionario anonimo auto-somministrato contenente domande specifiche sull'igiene degli alimenti e sul livello di conoscenza e sicurezza alimentare tra lo staff di cucina di navi mercantili.

Risultati. Il punteggio totale ottenuto dal questionario è stato di 51,77 (SD 3,87) su 76 punti totali, corrispondente al 68,12% di risposte esatte. Il personale di cucina che aveva seguito un corso di formazione ha ottenuto punteggi più elevati e le differenze più significative sono state osservate nelle sezioni "igiene personale", "conservazione", "conoscenza dei germi patogeni" ($p < 0,05$).

Conclusioni. Dai risultati emerge la necessità di formare adeguatamente lo staff di cucina a bordo delle navi. In particolare, tali addetti devono essere istruiti sugli aspetti dell'igiene degli alimenti, sulle patologie, sulla sanificazione, vista la loro responsabilità in merito alla salute e benessere di tutto l'equipaggio.

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