

Research into the Attitudes, Behavior and Knowledge Level of Kitchen Staff on Personal Hygiene

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Abstract: This study was conducted on 71 kitchen staff working in restaurants in the provinces of Aydın and Denizli and selected by random sampling method. The aim of the study was to determine their hygiene knowledge levels and their attitudes and behaviors towards personal hygiene. All of the staff under research were males. Total 53.5% of the subjects were below 30 years old and 46.5% were 30 or more. The ratio of primary school graduates was 38.0% while that of middle school graduates was 62.0%. The results of the study have revealed that the hygiene knowledge level of the kitchen staff in both age groups and education levels is mostly sufficient and good. It has been determined that age ($p>0.05$) and educational status ($p>0.05$) do not influence the hygiene knowledge level of staff.

Key words: Hygiene, staff hygiene, attitude, behavior, knowledge level

INTRODUCTION

Hygiene, which involves knowledge on the protection of a healthy environment and cleansing it off any disease factors, is the protection and betterment of health in a broad sense (Bulduk, 2003). Diseases of food origin are quite prevalent over the globe. Food can be exposed to various forms of contamination at different stages of the production-consumption chain. Therefore, dealing with food carefully at workplaces makes it possible to decrease the possibility of foodborne diseases. Many of the foodborne diseases are caused due to lack of staff hygiene, contamination occurring during production-consumption or wrong heating practices. The personal hygiene of someone who touches food with the hands has a crucial role in preventing foodborne diseases. Staff hygiene involves washing the hands, as well as cleanliness of all other parts of body that may be in touch with food. Furthermore, staff's being healthy, their not being carriers of diseases and their using gloves and caps while working are also included in staff hygiene. Nearly 20% of foodborne epidemics cases are caused by inadequate staff hygiene resulting from infected individuals' being in contact with food (Atasever, 2000). Food poisoning is still an important health problem in many countries today (Anonymous, 1989; Bryan, 1978, 1980). An important criterion for healthy nutrition is ensuring the consumption of food substances without breaking the hygiene chain following their production under hygienic conditions (Anonymous, 1978; Koburger, 1977; Ravenhill, 1980).

During the procedures on the food operation chain, from the production of food to its delivery to the consumer, microorganisms contaminated from various sources multiply rapidly under favorable conditions, causing the deterioration of the sensorial quality, economical losses and the emergence of foodborne diseases (Anonymous, 1982; Ewen and Todd, 1985; Göktan and Tunçel, 1987; Inal, 1992). The main objective of collective nutritional services is to fulfill the most appropriate service standards while providing services for the adequate and balanced nutrition of consumers. The basic condition of being able to provide a service with high quality hygiene is to obey the rules of hygiene regarding the physical conditions and tools and equipment, as well as staff and food hygiene (Koury, 1989; Kinton and Ceserani, 1989). Staff hygiene is one of the most important stages of the hygiene chain in this process (Aktan *et al.*, 1997; Atasever, 2000; Cruickshank, 1990; Gork, 1985; Merdol *et al.*, 2000). The staff deployed for the preparation of food bear crucial responsibility for human health so they should be healthy. An equally important requirement is that hands, body, clothes and the tools and equipment used should be hygienic, too (Çiğirim and Beyhan, 1994; Baş and Sağlam, 1997).

MATERIALS AND METHODS

This study was conducted on 71 randomly selected staff working in the kitchens of various restaurants in the provinces of Aydın and Denizli, in order to determine their behavior related to hygiene. Voluntary individuals from

the restaurants selected by way of random sampling were included in the research. The data were collected by means of the questionnaire method, through face to face interviews with the staff. The questionnaire form consisted of the following sections: General information about the kitchen staff the attitudes and behavior of the kitchen staff regarding personal hygiene and the knowledge of kitchen staff about hygiene. In order to determine the hygiene knowledge level of the kitchen staff, 9 questions were asked. Each question scored 10 points and the total score was 90 points. According to this, 10-30 points were evaluated as inadequate, 31-60 were adequate and 61-90 were good. The data were evaluated using the SPSS For Windows 15.0 statistical program and as statistical analyses, chi-square significance test and independent t-test were used. Regarding the answers about the attitudes and behavior of the kitchen staff about personal hygiene, the evaluation was made as follows: Yes 3 points, sometimes 2 points and no 1 point. The scoring was evaluated from 3-1 or from 1-3 according to the accuracy of the answer.

General information about the kitchen staff : The ages of the staff participating in the research varied between 18 and 64 and the mean age was 32.1 ± 0.9 . 53.5% of the staff were below 30 years old and 46.5% were 30 or above. The rate of those from primary education was 38.0% while that of those from middle school was 62.0%. A 44.2% of the staff were cooks, 30.2% were assistant cooks and 25.6% were chief cooks. A 50.7% of the staff had worked in this profession for less than 10 years. A 49.3% of the staff stated that they had been in this profession for 10 or more years. While the ratio of those who had worked in the same facility for more than 6 years was 66.2%, the ratio for those who worked in the same facility for 6 years or less was 33.8%. As for the daily working h, the ratio of those working for 8 h was 46.5%, that of those working for 9-12 h was 49.3 and the ratio of the staff working for more than 12 h was 4.2%. Total 52.1% of the staff worked in a restaurant with 6-10 staff while 26.8% worked in a restaurant with 5 or fewer staff. The ratio of those who worked in the same restaurant for less than 10 years was 78.9 and that of those who worked in the same place for 10 or more years is 21.1%. Total 57.5% of the cooks did not receive any education on their professions. Of those who received vocational education, 57.1% were trained at the apprentice training center and 42.9% received training from the TUREM (Tourism Education Center) course.

The attitudes and behavior of the kitchen staff regarding personal hygiene:

The aprons worn by the kitchen staff while working should be changed every day. Total 79.1% the 30 and above age group stated that they changed their aprons every day. This ratio fell to 55.8% in the below-30 age group. While, 81.8% of the middle school graduates stated that they changed their aprons every day, this ratio is lower in the middle school graduates (55.6%). Total 55.8% of the staff in the 30-and-above age group and 51.9% of the below 30 age group stated that they shaved every day. While, 63.0% of the primary school graduates said that they shaved every day, the ratio was lower for the middle school graduates (50%).

Total 47.9% of the staff under research stated that regular health check-ups were performed for determining carriers of disease, while 43.7% went through stool tests for parasite.

Six questions were asked to determine the attitudes and behavior of the kitchen staff regarding personal hygiene. The evaluation was made as follows: Yes 3 points, sometimes 2 points and no 1 point. The scoring was evaluated from 3-1 or from 1-3 according to the accuracy of the answer. The data obtained were assessed and presented in Table 1.

The risk of foodborne diseases as a consequence of contamination by hands is quite high. The cleanliness of hands can be ensured by washing them effectively under faucets that can be turned on by the elbow or the foot. Hands should be washed with hot water (43-50°C) (Atasever, 2000). The kitchen staff were asked the question Do you wash your hands with hot water at your workplace?. The average score of the 30-and-above age group (2.5152) was higher than that of the below-30 age group (2.2632). However, this difference is not statistically significant ($t = -1.565$, $p > 0.05$). In terms of the answers given to this question, the average score of the primary school graduates (2.5158) was higher than that of the middle school graduates (2.2955) ($t = 1.342$, $p > 0.05$).

After washing their hands, the staff should also brush their fingernails (Merdol *et al.*, 2000). If the fingernails are long and dirty underneath, food can get dirty and microorganisms can be contaminated (Bulduk, 2003). The answers to the question Do you brush your fingernails after washing your hands? indicated that the average score of the individuals below 30 (1.9211) was higher than that of those 30 and above (1.9091) ($t = 0.059$, $p > 0.05$) and the average score of the primary school graduates (2.1111) was higher than that of the middle school graduates (1.7955) ($t = 1.551$, $p > 0.05$).

Table 1: The mean scores related to the attitudes and behavior of the kitchen staff scores related to the attitudes and regarding personal hygiene

Attitudes and behavior regarding personal hygiene	Age	N	X	SD	Analysis		
					F	t	p
Do you wash your hands with hot water at your workplace?	<30	38	2.2632	0.7599	3.533	-1.565	0.122
	≥30	33	2.5152	0.5657			
	Education				0.242	1.342	0.184
	Primary	27	2.5158	0.6427			
	Middle school	44	2.2955	0.7014			
Do you brush your fingernails after washing your hands?	<30	38	1.9211	0.818	0.847	0.059	0.953
	≥30	33	1.9091	0.879			
	Education				0.000	1.551	0.125
	Primary	27	2.1111	0.8473			
	Middle school	44	1.7955	0.8234			
Do you wear a bonnet when you are working?	<30	38	2.5526	0.6856	1.649	-1.079	0.284
	≥30	33	2.7273	0.6742			
	Education				0.230	-0.040	0.968
	Primary	27	2.6296	0.7415			
	Middle school	44	2.6364	0.6502			
Do you use a glove while working?	<30	38	1.8421	0.7893	0.573	-1.113	0.269
	≥30	33	2.0606	0.8638			
	Education				0.016	1.654	0.103
	Primary	27	2.1481	0.8182			
	Middle school	44	1.8182	0.8147			
Do you wear a mask while working?	<30	38	1.5263	0.6872	9.962	-0.894	0.375
	≥30	33	1.6970	0.9180			
	Education				2.006	0.500	0.619
	Primary	27	1.6667	0.8770			
	Middle school	44	1.5682	0.7593			
Do you wear slippers, shoes or galoshes that you exclusively use in the kitchen?	<30	38	2.6316	0.5891	3.501	-1.337	0.186
	≥30	33	2.8182	0.5838			
	Education				0.424	-0.162	0.872
	Primary	27	2.7037	0.6688			
	Middle school	44	2.7273	0.5440			

Wearing appropriate caps or bonnets is important for the staff hygiene. Hair may fall in food and cause it to get dirty. The average score for the answers to the question Do you wear a bonnet when you are working? was higher in the 30-and-above age group (2.7273) than in the below 30 age group (2.5526) ($t = -1.079$, $p > 0.05$). It was also determined that the scores of the middle school graduates were a little higher than the primary school graduates (2.6296) ($t = -0.04$, $p > 0.05$).

Especially cooked food should not be touched with bare hands since the contamination of the food with the microorganisms that may exist in hands may cause food poisoning. Appropriate service tools or disposable gloves should be used in serving cooked food (Bulduk, 2003; Merdol *et al.*, 2000). The average score for the answers to this question was higher in the 30-and-above age group (2.0606) than in the below-30 age group (1.8421) ($t = -1.113$, $p > 0.05$). The primary school graduates (2.1481) use gloves more compared with the middle school graduates (1.8182) ($t = 1.654$, $p > 0.05$).

Masks should be worn while working to prevent the spray of saliva due to coughing, sneezing or speaking. It

was determined that the average score for the answers to the question about the use of a mask in the kitchen was higher in the 30 and above age group (1.6975) than in the below 30 age group (1.5263) ($t = -0.894$, $p > 0.05$). The primary school graduates (1.6667) use masks more than the middle school graduates (1.5682) ($t = 0.500$, $p > 0.05$).

In the kitchen, slippers or shoes used exclusively in the kitchen should be worn. Those who obeyed this rule was quite high in the 30 and above age group (2.8182) and the score was 2.6316 for the below 30 age group. Yet, this difference is not statistically significant (-1.337 , $p > 0.05$). The staff who used slippers or shoes exclusively for the kitchen was higher among the middle school graduates (2.7273) than the primary school graduates (2.7037) ($t = -0.162$, $p > 0.05$).

The knowledge of kitchen staff about hygiene: Some questions were asked to determine the hygiene knowledge of the kitchen staff and the data obtained were evaluated in Table 2.

The question, Should smoking be allowed in the kitchen?, was answered by the 81.8% of the 30 and above

Table 2: The knowledge of kitchen staff about hygiene

	Correct		Wrong		Does not know			Analysis Chi-square (X ²) Sd = 1
Should smoking be allowed in the kitchen?	Age							
	<30	29	76.3	6	15.8	3	7.9	0.321
	≥30	27	81.8	4	12.1	2	6.1	p>0.05
	Education							
Is it objectionable to work someone with flu in the kitchen?	Primary	22	81.5	3	11.1	2	7.4	0.178
	Middle school	34	77.3	7	15.9	3	6.8	p>0.05
	Age							
	<30	32	84.2	4	10.5	2	5.3	-
Is it objectionable to work in the kitchen when one has diarrhea?	≥30	30	90.9	3	9.1	0	-	
	Education							
	Primary	25	92.6	1	3.7	1	3.7	1.093
	Middle school	37	84.1	6	13.6	1	2.3	0.296
Should one work in the kitchen by covering an open wound or a cut in the hand with a sticking plaster?	Age							
	<30	15	39.5	20	52.6	3	7.9	0.583
	≥30	16	48.5	14	42.4	3	9.1	p>0.05
	Education							
Should accessories such as rings or earrings be removed while working in the kitchen?	Primary	16	59.3	8	29.6	3	11.1	4.309
	Middle school	15	34.1	26	59.1	3	6.8	p<0.05*
	Age							
	<30	13	34.2	22	57.9	3	7.9	-
How often should one take a shower at workplace?	≥30	13	39.4	20	60.6	0	-	
	Education							
	Primary	10	37.0	15	55.6	2	7.4	0.003
	Middle school	16	36.4	27	61.4	1	2.3	p>0.05
Where should the washbasins where the staff wash their hands be located in the workplace?	Age							
	<30	28	73.7	5	13.2	5	13.2	-
	≥30	29	87.9	4	12.1	0	-	
	Education							
What type of faucets should be installed for the staff to wash their hands?	Primary	22	81.5	4	14.8	1	3.7	0.40
	Middle school	35	79.5	5	11.4	4	9.1	p>0.05
	Age							
	<30	28	73.7	3	7.9	7	18.4	-
What type of soap is the healthiest for washing hands?	≥30	32	97.0	1	3.0	0	-	
	Education							
	Primary	22	81.5	1	3.7	4	14.8	0.305
	Middle school	38	86.4	3	6.8	3	6.8	p>0.05
What type of soap is the healthiest for washing hands?	Age							
	<30	25	65.8	10	26.3	3	7.9	-
	≥30	22	66.7	11	33.3	0	-	
	Education							
What type of soap is the healthiest for washing hands?	Primary	14	51.9	11	40.7	2	7.4	4.007
	Middle school	33	75.0	10	22.7	1	2.3	p>0.05
	Age							
	<30	27	71.1	8	21.1	3	7.9	-
What type of soap is the healthiest for washing hands?	≥30	24	72.7	9	27.3	0	-	
	Education							
	Primary	21	77.8	5	18.5	1	3.7	0.761
	Middle school	30	68.2	12	27.3	2	4.5	p>0.05
What type of soap is the healthiest for washing hands?	Age							
	<30	33	86.8	3	7.9	2	5.3	-
	≥30	32	97.0	1	3.0	0	-	
	Education							
What type of soap is the healthiest for washing hands?	Primary	25	92.6	1	3.7	1	3.7	0.061
	Middle school	40	90.9	3	6.8	1	2.3	p>0.05

age group correctly. The ratio was 76.3% in the below 30 age group (p>0.05). Total 81.5% of the primary school graduates and 77.3% of the middle school graduates stated that smoking should not be allowed in the kitchen; i.e. they answered this question correctly (p>0.05).

The staff were asked the question, Is it objectionable to work someone with flu in the kitchen? The question was correctly answered by the staff in the 30 and above

age group (90.9%). The rate falls to 84.2% in the below-30 age group.

Total 48.5% of the staff in the 30 and above age group correctly answered the question, Is it objectionable to work in the kitchen when one has diarrhea? While the rate decreases to 39.5% in the below-30 age group, the difference was not found to be statistically meaningful (p>0.05). The rate of the middle school graduates who

answered this question correctly (59.3%) was higher than that of the primary school graduates (34.1%), which is a statistically significant difference ($p < 0.05$).

The question, Should one work in the kitchen by covering an open wound or a cut in the hand with a sticking plaster?, was answered correctly by 39.4% of the 30 and above age group and by 34.2% of the below 30 age group. Total 38% of the primary school and 36.4% of the middle school graduates answered this question correctly ($p > 0.05$).

The question, Should accessories such as rings or earrings be removed while working in the kitchen?, was answered correctly by 87.9% of the 30 and above age group and the rate fell to 73.7% in the below-30 age group. However, this difference is not statistically significant. 81.5% of the primary school and 79.5% of the middle school graduates answered this question correctly ($p > 0.05$).

A 97% of the 30 and above age group answered the question, How often should one take a shower at workplace?, correctly. The ratio falls to 73.7% in the group who is below 30. Total 86.4% of the primary school and 81.5% of the middle school graduates answered this question correctly ($p > 0.05$).

Total 60.7% of the staff who are 30 and above and 65.8% of the staff who are below 30 correctly answered the question, Where should the washbasins where the staff wash their hands be located in the workplace? While the percentage of the middle school graduates is 75.0%, the number falls to 51.9% in the primary school graduates, which is not statistically significant ($p > 0.05$).

The question, What type of faucets should be installed for the staff to wash their hands?, was correctly answered by 72.7% of the 30 and above age group and 71.1% of the below-30 group. Total 77.8% of the primary school and 68.2% of the middle school graduates answered this question correctly ($p > 0.05$).

The majority of the staff correctly answered the question, What type of soap is the healthiest for washing hands?. While the ratio is 97.0% in the 30-and-above age group, it goes down to 86.8% in the below-30 age group. Total 92.6% of the primary school and 90.9% of the middle school graduates answered this question correctly ($p > 0.05$).

Hygiene knowledge level of the kitchen staff: Whereas 51.5% of the 30-and-above age group of the kitchen staff has a good level of hygiene knowledge, the ratio falls to 42.1% in the below-30 age group. Nevertheless, this difference was not found to be statistically significant ($p > 0.05$). The ratio of those whose knowledge level is adequate is 50% in the below-30 age group and the ratio

Table 3: Hygiene knowledge level

	Good		Adequate		Inadequate		Total		Analysis Chi-square (X ²) Sd = 1
	S	(%)	S	(%)	S	(%)	S	(%)	
Age									
<30	16	42.1	19	50.0	3	7.9	38	100.0	$p > 0.05$
≥30	17	51.5	16	48.5	0	0	33	100.0	
Education									1.447
Primary	15	55.6	11	40.7	1	3.7	27	100.0	
Middle school	18	40.9	24	54.5	2	4.5	44	100.0	$p > 0.05$

of the individuals in the 30 and above age group is close to this (48.5%). It was determined that 55.6% of the primary school graduates and 40.9% of the middle school graduates have a good level of hygiene knowledge ($p > 0.05$) (Table 3).

CONCLUSION AND RECOMMENDATIONS

The research results have revealed that the hygiene knowledge level of the kitchen staff is mostly adequate and good in both age groups and education level. It has been determined that age and educational status do not have an effect on the hygiene knowledge levels of the staff. Attitudes and behavior regarding personal hygiene is usually correct. Still, providing both pre-service and in-service training for the kitchen staff working in the collective nutrition services is very important for ensuring staff hygiene and preventing foodborne diseases. Kitchen staff should be trained by people specialized in this matter not only to provide information but also to refresh their knowledge. The training should strongly emphasize what the staff should do, as well as why and how to do so.

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