

Original article

# Public Catering Establishments in Addis Ababa: Physical and Sanitary Facilities

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**Abstract:** This cross-sectional survey was carried out to assess the sanitary condition of catering establishments in 50 randomly selected Kebeles of Addis Ababa during October to December, 1994. A total of 600 catering establishments were randomly selected for the study, 12 from each Kebele, after a complete census of all catering establishments in the 50 selected Kebeles. Data were collected from 587 establishments, for a response rate of 97.8%. Among those who responded, 559(95.2%) were privately owned out of which 171(30.6%) had no formal license. One hundred and fifty eight (26.9%) of the managers were not literate. High rates of poor repair condition of premises, inadequate sanitary facilities, and improper waste storage and disposal were among the major findings of the study. Regular supervision and education of the managers and workers of catering establishments are recommended, together with strict enforcement of the relevant laws during issuing licenses and renewals, in order to improve the current sanitary condition of catering establishments. [*Ethiop. J. Health Dev.* 1999;13(2):127-134]

## Introduction

With increasing urbanization, the number of public catering establishments is increasing in Ethiopia as in other developing countries. Since catering operations, by virtue of their scale and complexity, are potentially capable of producing disastrous health consequences if the strictest principles of hygiene are not maintained, they deserve due consideration in areas where general sanitary conditions are poor (1,2).

Poor standard of catering establishments is believed to be the source of foodborne disease outbreaks in cities. Detailed analyses of many food-borne infections have shown that, though most cases are attributable to several factors, the main factors are substandard hygienic conditions during meal production and service (3). Lack of proper sanitation due to deficient construction, inadequate hygienic state of machinery, cutlery and cloths, incorrect storing of refuse, and the lack of facilities for disinfection of table cutlery have been identified as major problems in public catering businesses (4). Improvement in methods of food preparation and education of those responsible for the provision of food, particularly in mass catering situations, is believed to reduce the incidence of food poisoning (5,6).

In Addis Ababa (Region 14), based on unofficial reports of the Hotel and Tourism Commission, 567 hotels, 766 restaurants, and 600 snack bars were registered and legally licensed up to June 1994. A number of government agencies are involved in the licensing and monitoring of these establishments. However, the activities in various government agencies are not coordinated (7).

This study was conducted in collaboration with the Department of Environmental Health and Hygiene of the Addis Ababa Regional Health Bureau. The objective of this paper was to describe the sanitary and physical conditions

of catering establishments in Addis Ababa. Other aspects of catering establishments that deal with their actual practice of food handling are described in a related paper elsewhere (8). This paper is expected to provide basic information, in a neglected but very important field of public health, which could be useful for future investigation and action.

## **Methods**

A cross-sectional study was conducted from October to December, 1994 in Addis Ababa, the capital city of Ethiopia, which then had 284 Kebeles (a kebele being the smallest administrative unit in the city). Out of these 284 *Kebeles*, 50 were randomly selected using the lottery method. A census was then conducted in each of the 50 Kebeles to obtain the list of existing catering establishments. A catering establishment is defined as any business enterprise, serving/vending food and drink, regardless of its legal status. Upon completion of the census registration, 12 public catering establishments were randomly selected from each Kebele using the simple random table. Thus, the sampling procedure was completed by selecting 600 establishments out of the total of 1485 establishments registered during the census in the 50 Kebeles. A sample size of 600 was estimated with conservative assumption of a 50% prevalence (p) of good sanitary status, expected maximum discrepancy of  $\pm 4$ , and with 95% certainty.

The study utilised a questionnaire newly developed for this study. The questionnaire was presented to sanitation experts in the Region (Addis Ababa) and elsewhere for their comments, in order to obtain content validity.

The questionnaire was designed to obtain information on socio-demographic characteristics of managers, physical conditions of the premises (conditions of the wall, ceiling and floor), and availability of sanitary facilities such as latrine and waste disposal in the premises of the catering establishments. It was initially prepared in English and later translated into Amharic and finally translated back into English. The survey was carried out using the Amharic questionnaire. A pilot study was carried out in catering establishments not selected for the main survey to test the instrument for conceptual clarity, and to provide practical field experience for data collectors.

The field research team included the principal investigator, two senior sanitarians from the Regional Health Bureau, 16 enumerators (eight males and eight females), and 50 street guides (one from each Kebele). The enumerators were all high school graduates and they were provided with a seven-day training. The training had both theoretical and practical sessions which focused on interview techniques, on the use of field manuals, and on inspection techniques. Enumerators were provided with field manuals to be used during the training and later on during interviewing and observation. All research team members also participated in the pilot study.

The enumerators were organized in a team of two (one male and one female). Each enumerator was given an identity paper from the Regional Health Bureau to facilitate the data collection process. The paper had explanation of the purpose and importance of the study. To save time and to avoid unnecessary confusion in locating the selected establishments in the Kebeles, a guide was hired in each Kebele to assist the team. The sanitarians carried out regular spot checks using a motor bicycle. The principal investigator closely observed and coordinated the overall activities of the study project. In each establishment, the managers, who in most cases were also owners, were interviewed. Three visits were made before declaring absentees as not available. Data quality was maintained by spot checking and reviewing the completed forms by the principal investigator daily. Enumerators were provided with a manual that describes each variable, and which contains observation guidelines.

Data entry, cleaning, and analysis were made using Epi Info version 5 statistical package. Frequency distribution, percentages, and odds ratio (OR) with 95% confidence interval (95% CI) were calculated as appropriate to present the data. Comparison was made between licensed and unlicensed establishments. License is given by the Regional Ministry of Internal Trade for establishments believed to fulfill the criteria related to health and architecture as defined by the Ministry.

## Results

The census performed for this study identified 1485 catering establishments in the 50 Kebeles which were randomly selected for the study, out of which 600(40.4%) were enrolled into the study. Each team of enumerators, on average, completed five questionnaires per day; the actual data collection, therefore, took about three weeks. Questionnaires were completed for managers in 587(97.8%) establishments while the remaining 13 managers were not available. The establishments included, by category, were: 167 hotels, 290 restaurants, 51 bars, 21 Kebele recreation places, 16 butcher shops, 19 groceries, and 23 *Tej* (local wine) selling houses. As shown in Table 1, 416(70.9%) of these establishments were found to have formal license certificates. All the 21 Kebeles owned recreation places, 127(43.8%) of the restaurants and four (25%) of the 16 butcher shops had no formal license certificates.

Five hundred fifty nine (95.2%) of the establishments were privately owned enterprises; 309(52.6%) of the establishment managers were males and 278(47.4%) were females. The median age of managers was 39.5 years, ranging from 18 to 70 years; nearly 50% of them were between 35 and 49 years (Table 2).

The median years of service for the establishments was 2.5, ranging from three months to forty years. The majority (70.5%) of the establishments had floors constructed of concrete tiles and, in 1.7%, floors were found to be just plain earth. Floor repair condition was good (smooth and easy to clean) in 50% of establishments, while walls and ceilings repair conditions were found to be good (no break/crack and plastered) in only 16% of the establishments. About half of the establishments had walls and ceilings clean as observed by the naked eye. Two hundred

sixty-five (45.1%) of the establishments had separate food storage rooms. Adequate ventilation (having openable windows and chimney) was observed in 420(71.6%) of the rooms used for food preparation; 209(78.9%) of the rooms used for food storage, and in 568(96.8%) of the dining rooms. The Regional Health Bureau is expected to inspect catering establishments regularly but inspection is not fully and regularly performed for various reasons. Comparison between those inspected and not inspected showed that ventilation condition, and physical

condition of floors, walls and ceilings were better among inspected establishments (Table 3). The Regional Health Bureau had no clear guidelines for use during the inspection of these establishments. Also, the frequency of inspection is not clearly indicated. Analysis performed by years of service, to eliminate the effect of the age of establishments on their physical condition, showed no difference between the 170(29.0) which provided service for more than five years and the 417(71.0%) for five or less years <sup>1</sup>Total equals establishments with private pipe

<sup>2</sup>Total equals establishments with available running water in cooking and washing rooms

<sup>3</sup>Total equals establishments with available lavatory facilities

Type of water source, availability of washing facilities, availability of toilet, and availability of detergents for washing were observed to be relatively better in licensed establishments (OR were 10.17, 2.81, 3.26, and 2.0, respectively). However, even among the licensed establishments, a considerable proportion of them lacked these basic sanitary facilities (Table 5).

Four hundred and eighty-five (82.6%) of the establishments were found to have a receptacle to store solid wastes in their compound; in the remaining 17.4% of the establishments, there was nothing. Out of these 485, 202(41.6%) had a tightfitting cover, while 278(57.3%) were constructed of durable metallic or plastic materials; 275(56.7%) were placed at a visible site for use. Most (89.8%) of the establishments dispose of their solid wastes using the municipal refuse collecting containers which are picked-up by municipal lorries or directly into the municipal lorries. In addition, 12.3% of the establishments had no place to dispose of liquid waste; 341(58.1%) of the establishments dispose liquid waste simply into the city's road drains. Waste storage and disposal practises were observed to be significantly better in licensed establishments than in the unlicensed establishments (OR were 3.36 for proper solid waste storage, 2.81 for proper liquid waste disposal, and 1.86 for proper solid waste disposal), as shown in Table 6.

### **Discussion**

The study findings cannot apply to the tourist and large government-owned catering establishments which were excluded from the study mainly due to the criteria used to assess the sanitary conditions were locally developed and far below the minimum requirements set for international and tourist quality categories. Their inclusion would have biased the findings by giving a more favourable picture of the situation criteria for assessing the quality of catering establishments may include methods used against contamination by biological pathogens, protection against toxic chemical contaminants, protection of food from adulteration, water quality control, and site selection. Therefore, it is worth noting that, by using a less stringent criteria, the study might have given a more positive picture of the studied catering establishments.

This study revealed that a high proportion of public catering establishments operate without any legal permission (license). These unlicensed establishments had relatively poor sanitary status and were observed to cater for low prices and were unable to fulfil the government requirements to get the formal license. The Ministry of Internal Trade provides licenses to catering establishments based on a subjective assessment of the physical and sanitary condition of the building to be used for the purpose. Though a legislative approach alone to improve sanitary practices of catering establishments proved to be of little importance in the prevention of food borne diseases in many countries (9), this study has shown a positive impact of the legislative approach in improving the sanitary conditions. However, it may be that only the relatively "good" establishments are the ones who apply for a license.

Poor repair condition and poor ventilation of catering premises were problems in the majority of the establishments, the unplanned and crowded housing situation, (as most establishments were residential housings which were later converted to business establishments without proper design) and the overall deterioration of their physical condition over the years (11), were some of the reasons for the observed poor conditions. Since defective construction characteristics and poor repair conditions had significant impact on the overall sanitary practices of catering establishments (5), concerned agencies need to strictly enforce the law during the initial licensing, routine inspection, and during the annual license renewal, among other measures.

The observation of better ventilation and repair condition of floors, walls, and ceilings in the licensed establishments could be due to recent repairs made in the process of obtaining the license, and to the fact that the majority of these establishments had been in service for less than five years. Other reasons may include the more frequent sanitary visits made to these establishments by the local sanitarians, compared to the unlicensed ones.

The unacceptable and inadequate solid and liquid waste storage and disposal methods identified in the majority of the catering establishments is believed to be the reflection of the general sanitary problems of the city (10,11). Very few (2%) places in the city are covered by the modern sewerage system (10). In Addis Ababa, according to the information gathered from sanitarians, the most common method to dispose of liquid waste is by connecting to road drains. This could be one of the major factors for the high prevalence of diarrhoeal and other communicable diseases in the city (10). Proper solid waste disposal can only be achieved in the city by using the municipal refuse containers and the refuse collecting lorries, which presently cover a small portion of the city. Therefore, to bring any sanitary improvement in the catering establishments without improving the general sanitary conditions of the city is not realistic.

The involvement of sanitary experts during the development of the survey instrument, and during the pilot phase of the study are believed to have greatly enhanced the credibility of the instrument used to collect the data. Thorough training of the enumerators and close supervision of the data collection process have also contributed to the quality of the data by minimising the possible introduction of error during data collection, particularly in recording observations. Since random procedures were strictly followed during the selection of Kebeles and individual establishments, to minimize selection bias. Thus, the findings of this study can be generalized to catering establishments in the city, except for the big government hotels. Since this study is the first of its kind in Ethiopia, the experience gained during the implementation and the findings obtained are very valuable to the city and to the nation at large.

In conclusion, the sanitary condition of the catering establishments, in general, was observed to be poor. However, licensed establishments showed better sanitary conditions compared to the unlicensed establishments. Possibilities of contamination of foodstuffs were highly probable due to the poor repair and ventilation condition of the premises, the inadequacy of waste storage and disposal system, and the lack of sanitary (washing and toilet) facilities.

The authors recommend that the concerned government agencies, particularly the Ministry of Health and the Ministry of Internal Trade, work together in a coordinated manner in order to improve the situation. Since eminent danger for food-borne disease outbreaks is highly prevailing in the city because of the poor hygienic status of catering establishments, the process of the official registration of catering establishments needs to be strengthened. Emphasis should be given to the physical and structural design of the houses, and to the availability of sanitary facilities appropriate for the purpose. Regular supervision and education of the managers and workers of catering establishments are recommended, together with strict enforcement of the relevant laws during issuing and renewal of their licenses. In addition, routine sanitary inspection and surveillance formats should be developed and fully enforced in the city. The City Council should also work towards the improvement of the general sanitary condition of the city as a whole, and, in particular, the waste storage and disposal systems.

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**Table-1 Type of catering establishments by their legal status. Addis Ababa, 1994.**

Type of establishment	Licensed(%)	Unlicensed(%)	Total(%)
HOTEL	156(93.4)	11(6.6)	167(28.4)

RESTAURANT	163(56.2)	127(43.8)	290(49.4)
BAR	46(90.2)	5(9.8)	51(8.7)
RECEATION		21(100)	21(3.6)
BUTCHER SHOP	12(75.0)	4(25.0)	16(2.7)
GROCERY	18(94.7)	1(5.3)	19(3.2)
THJHOUSE	21(91.3)	2(8.7)	23(3.90)
<b>TOTAL</b>	416(70.9)	171(29.1)	587(100)

**Table –2 Selected Socio-Demographic characteristics of managers in catering establishments by legal status. Addis Ababa, 1994.(n=587)**

Characteristics	Licensed	Unlicensed	Total(%)
MANAER SEX	230(55.3)	79(46.2)	309(52.6)
Male	186(44.7)	92(53.8)	278(47.4)
Female			
MANAGER AGE (Years)	96(23.1)	67(39.2)	163(27.8)
15-34	204(49.0)	75(43.9)	279(47.5)
35-49	116(27.9)	29(16.9)	145(24.7)
50& above			
EDUCATIONAL STATUS	111(26.7)	47(27.5)	158(26.9)
Illiterate	169(40.6)	63(36.8)	232(39.5)
Grade 1-8	136(32.7)	61(35.7)	197(33.6)
9& above			
	78(18.7)	40(23.4)	118(20.1)
MARITAL STATUS	283(68.0)	114(66.7)	397(67.6)
Single	26(6.3)	7(4.1)	33(5.6)
Married	29(7.0)	10(5.8)	39(6.6)
Divorced			
Windowed			

**Table-3 Repair and ventilation condition of catering establishments in relation to the sanitary inspection visit made by the regional health bureau. Addis Ababa,1994.(n=587)**

Condition	SANITARY INSPECTION	OR(95%CI)
FLOOR REPAIR CONDITION	137(43.4)	179(56.6)
Good	83(30.6)	188(69.4)
	1.73(1.22,2.47)	
FLOOR CLEAN	105 (39.6)	160(60.4)
Yes	115(35.7)	207(64.3)
	1.18(0.83,1.68)	
WALLS & CEILINGS REPAIR CONDITION	45(48.4)	48(51.6)
Good	175(35.4)	319(64.6)
	1.71(1.07,2.73)	
WALLS AND CEILINGS CLEAN	131(37.9)	215(62.1)
Yes	89(36.9)	152(63.1)
	1.04(0.73,1.48)	



VENTILATION IN ROOM/S	169(40.2)	251(59.8)
Adequate	51(30.5)	116(69.5)
1.53(1.03,2.29)		

Yes No

Bad  
No  
Bad  
No  
Not adequate

**Table 4- Physical condition of catering establishments by year of service. Addis Ababa.1994.(n=587)**

Characteristics	Year of Service $\leq$	Year of service Above 5	OR(95% CI)
FLOOR REPAIR	219(52.5%)	97(57.1%)	0.83(0.57,1.21)
Good	198(47.5%)	73(42.9%)	
Bad	417(71.0%)	170(29.0%)	
Total			
WALLS AND CEILINGS REPAIR	72(17.3%)	21(12.4%)	1.48(0.85,2.59)
Good	345(82.7%)	149(87.6%)	
Bad	417(71.0%)	170(29.0%)	
Total			
VENTILATION	294(70.5%)	126(74.1%)	0.83(0.55,1.27)
Adequate	123(29.5%)	44(25.9%)	
Not adequate	417(71.0%)	170(29.0%)	
Total			

Table –5 Sanitary facilities in catering establishments. Addis Ababa, 1994.  
(n=587)

Characteristics	Licensed(%)	Unlicensed (%)	Or(95 % CI)
<b>Water source</b>	405(97.4)	134(78.6)	10.17(4.83,21.82)
Private/individual pipe	11(2.6)	37(21.6)	
Communal pipe			
1 Running water in food preparation rooms:	223(55.1)	62(46.3)	
A vailable	182(45.9)	72(57.7)	
Not available	405	134	
Total			
2 Hot water	17(7.3)	5(8)	
A vailable	206(92.7)	57(92)	0.94(0.31,3.06)
Not available			
<b>Lavatory/washing facility for employee/customer</b>	292(70.2)	78(45.6)	
<b>Available</b>	124(29.8)	93(54.4)	
<b>Not available</b>	2.81(1.91,4.12)		
3 Sop/detergents at washing place for customers	249(85.3)	58(74.4)	2.0(1.05,3.80)
<b>Available</b>	43(14.7)	20(25.6)	
<b>Not available</b>			
<b>Sanitary facility</b>	376(90.2)	127(74.3)	3.26(1.98,5.37)
<b>Available</b>	40(9.8)	44(24.7)	
<b>Not available</b>			

1 Total equals establishments with private pipe.

2 Total equals establishments with available running water in cookingAnd washing rooms.

3 Total equals establishments with available lavatory facilities

**Table-6 Storage and disposal of waste in catering establishments. Addis Ababa,1994.(n=587)**

	Licensed	Unlicensed	OR(95%CI)
Solid waste stored properly*	367(88.2)	118(69.0)	3.36(2.12,5.35)
Yes	49(11.8)	53(41.0)	
No			
Liquid waste not disposed in open surrounding	380(91.3)	135(78.9)	
Yes	36(8.7)	36(21.1)	2.81(1.65,4.79)
No			
Solid waste disposed in municipal container/ lorry	381(91.6)	146(85.4)	
Yes	35(8.4)	25(14.6)	1.86(1.04,3.33)
No			

\* Solid waste storage was considered proper if a receptacle with well fitted cover was observed at visible and easily accessible site for use.