



STUDY ON EDUCATIONAL QUALIFICATION OF FOOD HANDLERS OF VARIOUS FOOD SERVICE ESTABLISHMENTS IN NAGPUR AND AKOLA CITY

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ABSTRACT:

Food is the most complex part of the environment to which human population is exposed to variety of contaminants. "Access to safe food and nutritionally adequate is the right of every individual" declares WHO (2002). Academic qualification builds the ability of an individual to seek knowledge, understand and perform his task efficiently. Education is directly related to knowledge regarding pathogens that caused food-borne illnesses. The total sample therefore consists of 700 workers including 350 from Nagpur and 350 from Akola city. From the present study it is concluded that maximum per centage of food handlers both from Akola (42%) and Nagpur (52.29%) were educated up to high school level. Comparatively few food handlers from Nagpur as well as Akola were diploma holder in Hotel management or catering business or graduates. The variability in education was 39.99 per cent and 37.74 per cent for Nagpur and Akola food handlers, respectively. The food handlers working in Nagpur and Akola were at par and did not differ in education. They were more or less educated equally. The 'Z' value (0.562) of mean differences was observed to be non-significant. It has proved that the food handlers working in Nagpur and Akola were at par and did not differ in education. They were more or less educated equally.

Keywords: literate and illiterate

INTRODUCTION :

"Food that looks good, smells good and even taste good can contain millions of Bacteria".

India is the world's second largest producer of food. While India has an abundant supply of food but the food processing industry is still nascent. About two per cent of fruit and vegetables and fifteen per cent

of milk produce are processed. Unprocessed foods are susceptible to spoilage by biochemical process, microbial attack and infestation. Due to poor handling of the produce, post harvest losses are generally high. It ranges 10 to 20 per cent for non-perishable and above 30 per cent for perishable.



The right practices of post harvest such as good processing techniques, packaging, transportation and storage can play a significant role in reducing spoilage, extending self life and avoid health hazard by consuming spoiled food. Processing also achieve value addition and thus enhanced farm income (Agarwal, 2007).

Academic qualification builds the ability of an individual to seek knowledge, understand and perform his task efficiently. It is obvious that a lot of health education is necessary among the food handlers to avoid food related infections, contaminations and hazards. Education is directly related to knowledge regarding pathogens that caused food-borne illnesses. On the basis of formal schooling the food handlers and food service providers belonging to selected category of food service establishments of Nagpur and Akola were categorised and the results obtained are depicted

Sheth *et al.* (2007^b) while working on food safety education to mothers in rural slum of Vadodara city assessed the socio-economic status and living condition of the selected families. They revealed that most of the families were nuclear having 4-6 members with per capita income ranging from Rs. 500-2500. Most of the mothers were illiterate.

Chauhan *et al.* (2008) assessed the nutrition, diet and disease profile of elderly males residing in rural area. So far as socio-economic status was concerned, they reported that 78 per cent were married and 15.4 per cent widower. Education status, 41.5 per cent were illiterates and 26 per cent had completed secondary education and they were falling in middle income and low income group, respectively.

Objectives

1. To study the education status of food handlers and food service providers.



MATERIAL AND METHODS

Based on the literature reviewed and the opinion of experts in the field, the variables for the study were selected. From the total population of different types of workers handling and serving food, a random sample of 50 workers from each type of food establishment from each city was drawn for the purpose of study. The total sample therefore consists of 700 workers including 350 from Nagpur and 350 from Akola city.

The variable included the characteristics of food handlers and serving personnel academic qualification.

Academic qualification was considered as the standard of formal education of the individual respondent. The standard of formal schooling passed was considered as individuals education score. Following categories were framed for classifying the respondents on the basis of their educational achievement.

Sr. No.	Category	Educational standard
1	Illiterate	No formal education
2	Primary School	Upto 4 th std.
3	Middle School	5 th to 7 th std.
4	High School	8 th to 10 th std.
5	Junior College	11 th to 12 th std.
6	Diploma holder and Graduates	Diploma holders in food technology, graduates and postgraduates in any faculty

Following statistical techniques were considered appropriate and used for analysis of data for drawing conclusions.

1. Arithmetic mean (\bar{X})
2. Standard deviation (σ)

3. 'Z' test of mean differences

Arithmetic mean \bar{X}

Mean values were calculated for all the variables. In order to find out whether these



means differ significantly from each other they were used for each parameter. It was calculated by summing all the scores and dividing it by number of respondents (food handlers).

2. Standard deviation (σ)

It is the measure of variability calculated around mean.

Z-test for testing mean differences

To make comparison between selected independent and dependent variables of Nagpur and Akola food handlers 'Z' test for testing the mean difference was used.

RESULTS AND DISCUSSION :

The study of socio-economic characteristic was made with reference to education of food handlers and food service providers working in food service establishments. The results obtained after distribution analysis on these variables have been presented under following subheads.

On the basis of formal schooling the food handlers and food service providers belonging to selected category of food service establishments of Nagpur and Akola were categorised and the results obtained are depicted in Table 1.

Distribution of food handlers and food service providers according to education

Sr. No.	Education	Nagpur		Akola	
		No (50)	Per cent	No (50)	Per cent
1	Street food vendors Group				
	Illiterate	1	2	1	2
	Primary School (Upto 4 std.)	4	8	4	8
	Middle School (5 to 7 std.)	7	14	7	14
	High School (8 to 10 std.)	26	52	24	48
	Junior College (11 to 12 std.)	9	18	8	16
	Diploma holder, Graduate and above	3	6	6	12
	Total	50	100	50	100
	Mean	8.86		9.28	



	S D	3.07		3.13	
	C V	34.66		33.73	
	'Z' value between		0.238		
2	Restaurants Group				
	Illiterate	1	2	1	2
	Primary School (Upto 4 std.)	7	14	1	2
	Middle School (5 to 7 std.)	11	22	9	18
	High School (8 to 10 std.)	27	54	30	60
	Junior College (11 to 12 std.)	3	6	7	14
	Diploma holder, Graduate and above	1	2	2	4
	Total	50	100	50	100
	Mean	7.80		9.14	
	S D	2.98		2.72	
	C V	38.16		29.74	
	'Z' value between		0.793		
3	Dhabas Group				
	Illiterate	4	8	4	8
	Primary School (Upto 4 std.)	6	12	4	8
	Middle School (5 to 7 std.)	4	8	11	22
	High School (8 to 10 std.)	26	52	18	36
	Junior College (11 to 12 std.)	10	20	9	18
	Diploma holder, Graduate and above	0	0	4	8
	Total	50	100	50	100
	Mean	8.10		8.60	
	S D	3.64		3.82	
	C V	44.91		44.39	
	'Z' value between		0.259		
4	Railway/ Bus stand food outlets				
	Illiterate	4	8	1	2
	Primary School (Upto 4 std.)	10	20	2	4
	Middle School (5 to 7 std.)	8	16	5	10
	High School (8 to 10 std.)	26	52	18	36
	Junior College (11 to 12 std.)	2	4	15	30
	Diploma holder, Graduate and above	0	0	9	18



	Total	50	100	50	100
	Mean	6.66		10.44	
	S D	3.15		3.12	
	C V	47.35		29.86	
	'Z' value between		2.135*		
			*		
5	Mass caterers Group				
	Illiterate	2	4	5	10
	Primary School (Upto 4 std.)	8	16	5	10
	Middle School (5 to 7 std.)	7	14	4	8
	High School (8 to 10 std.)	21	42	21	42
	Junior College (11 to 12 std.)	9	18	8	16
	Diploma holder, Graduate and above	3	6	7	14
	Total	50	100	50	100
	Mean	8.26		8.74	
	S D	3.47		3.98	
	C V	42.00		45.58	
	'Z' value between		0.248		

6	Hostels Group				
	Illiterate	2	4	5	10
	Primary School (Upto 4 std.)	6	12	5	10
	Middle School (5 to 7 std.)	5	10	11	22
	High School (8 to 10 std.)	27	54	19	38
	Junior College (11 to 12 std.)	8	16	8	16
	Diploma holder, Graduate and above	2	4	2	4
	Total	50	100	50	100
	Mean	8.50		8.00	
	S D	3.23		3.68	
	C V	38.05		45.95	
	'Z' value between		0.270		
7	Home delivery centers Group				
	Illiterate	0	0	2	4
	Primary School (Upto 4 std.)	6	12	1	2



Middle School (5 to 7 std.)	5	10	5	10
High School (8 to 10 std.)	30	60	17	34
Junior College (11 to 12 std.)	7	14	22	44
Diploma holder, Graduate and above	2	4	3	6
Total	50	100	50	100
Mean	8.74		9.92	
S D	2.83		3.18	
C V	32.35		32.06	
'Z' value between		0.682		

** indicates statistical significance at 1 per cent level

1. Street food vendors

It is apparent from Table 1 that maximum percentage of the street food vendors of Nagpur (52 %) and Akola (48%) were educated up to high school level. It was followed by 18 per cent in Nagpur and 16 per cent in Akola who were educated up to junior college level. As much as 14 per cent each of street food vendors at both the place were educated up to middle school. Comparatively small percentage of street food vendors of Nagpur and Akola had primary school level education, diploma holder and graduate and above level education or were illiterate.

The mean education score of Nagpur street food vendors was 8.86 and was observed lesser than

that of Akola street food vendors (9.28). The variability in education was 34.66 per cent and 33.73 percent for Nagpur and Akola street food vendors, respectively. The 'Z' value (0.238) of mean differences was observed to be non-significant. It has clearly indicated that the street food vendors working in Nagpur and Akola were at par and did not differ in education. They were more or less educated equally.

2. Restaurants

It is seen from Table 1 that more than fifty per cent of the food handlers working in restaurants of Nagpur (54%) and Akola (60%) were educated up to high school level. It was followed by 22 per cent in Nagpur and 18 per cent in Akola who took middle school education.



Primary school level, Junior college level education, Graduate and above level education was completed by less percentage of food handlers. It is noteworthy that a meagre percentage of food handlers in the selected sample at both places had undergone formal education of Hotel management or catering business or simple graduation.

The mean education score of food handlers working in restaurants of Nagpur was 7.8 and was observed lesser than that of Akola (9.14). Also the variability in education was comparatively more in food handlers working in restaurants of Nagpur (38.16%) as compared to food handlers working in restaurants of Akola (29.74%). The 'Z' value (0.793) of mean differences was observed to be non-significant. It has clearly indicated that the food handlers working in restaurants of Nagpur and Akola were at par and did not differ significantly in education. They were more or less educated equally.

3. Dhabas

It is evident from Table 1 that above fifty per cent of the food handlers working in dhabas of Nagpur (52 %) were educated up to high school level. It was followed by 20 per cent who were educated up to junior college level and 12 per cent up to primary school. Food handlers educated up to middle school level and illiterate were 8 per cent each respectively. Nobody was found to be graduate or diploma holder in Hotel management or catering business from the selected sample.

Among food handlers working in dhabas of Akola, 36 per cent of them were educated up to high school level. It was followed by 22 per cent who were educated up to middle school and 18 per cent up to Junior College level. Few of them were either illiterate or educated up to primary school level. Only 8 per cent food handlers had diploma in Hotel management or graduate degree.

The mean education score of food handlers working in dhabas of



Nagpur was 8.10 and was observed lesser than that of Akola food handlers (8.60). A high variability in education was observed in food handlers working in dhabas of Nagpur (44.91%) and Akola (44.39%). The 'Z' value (0.259) of mean differences was observed to be non-significant. It has clearly indicated that the food handlers working in dhabas of Nagpur and Akola were similar and did not differ in education.

4. Railway and Bus stand food outlets

It is observed from Table 1 that more than half of the food handlers working in railway and bus stand food outlets of Nagpur (52 %) were educated up to high school level. It was followed by 20 per cent who took primary school education. Middle school level education was acquired by 16 per cent. Only 4 per cent had Junior college level education. Nobody was Graduate and diploma holder in Hotel management or catering. Illiterate were to the extent of 8 per cent.

In respect of Akola, food handlers were working in railway and bus stand food outlets, 36 per cent of them were educated up to high school level. It was followed by 30 per cent who were educated up to Junior College level and 18 per cent were graduates and diploma holders in Hotel management. Middle school and primary school level educated were 10 per cent and 4 per cent respectively. Illiterates percentage was only 2 per cent.

The mean education score of Nagpur food handlers was 6.66 and was observed to be less than that of Akola food handlers (10.44). Also the variability in education was comparatively high in food handlers working in railway and bus stand food outlets of Nagpur (47.35%) as compared to food handlers of Akola (29.86%). The 'Z' value (2.135) of mean differences was observed to be statistically significant. Indicating that the food handlers working in railway and bus stand food outlets of Nagpur significantly differ in education from food handlers



working in Akola. The food handlers working in railway and bus stand food outlets in Akola were significantly higher educated than those in Nagpur.

5. Mass Caterers

It could be seen from Table 1 that maximum percentage of the food handlers working in mass caterers of Nagpur (42%) and Akola (42%) were educated up to high school level. It was followed by 18 per cent from Nagpur and 16 per cent from Akola who was educated up to junior college level. Comparatively small percentage of food handlers in Nagpur and Akola had graduate level education or diploma in Hotel management or catering business.

The mean education score of food handlers working in mass catering centres of Nagpur was 8.26 and that of Akola was 8.74. The high variability in education was found in food handlers working in mass caterers of Nagpur (42%) and Akola (45.58%). The 'Z' value (0.248)

of mean differences was observed to be non-significant. It has established that the food handlers working in mass caterers of Nagpur and Akola were at par and similar in education.

6. Hostels

It is evident from Table 1 that more than fifty per cent of the food handlers working in hostels of Nagpur (54%) were educated up to high school level. It was followed by 16 per cent who took Junior College level education. Primary school level education was acquired by 12 per cent and 10 per cent had middle school level education. Very few food handlers were included in the category of graduation and diploma holder.

In case of Akola food handlers working in hostels, 38 per cent of them were educated up to high school level. It was followed by 22 per cent who were educated up to middle school and 16 per cent up to Junior College level. The diploma holder in Hotel management or



catering business and graduates were found to be very few.

The mean education score of food handlers working in hostels of Nagpur was 8.5 and that of Akola was 8. The variability in education was 38.05 per cent and 45.95 per cent, respectively in food handlers working in hostels of Nagpur and Akola. However, in comparison the education variability is more in case

The result in Table 1 reveals that majority of the food handlers working in home delivery centers of Nagpur (60%) were educated up to high school level. It was followed by 14 per cent who were educated up to junior college level and 12 per cent up to primary school. Food handlers educated up to middle school level were 10 per cent while graduate and diploma holders in Hotel management were only 4 per cent.

The mean education score of food handlers working in home delivery centers of Nagpur (8.74) was observed to be lesser than that of

of food handlers working in hostels of Akola as compared to Nagpur. The 'Z' value (0.270) of mean differences was observed to be non-significant and clearly showed that the food handlers working in hostels of Nagpur and Akola were at par and did not differ in education from each other.

7. Home delivery centers

Akola food handlers (9.92). The variability in education was at par for the food handlers working in home delivery centers of Nagpur (32.35%) and Akola (32.06%). The 'Z' value (0.682) of mean differences was observed to be non-significant. It has clearly showed that the food handlers working in home delivery centers of Nagpur and Akola were at par and did not differ in education level. They were more or less educated equally.



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