

*Research Article***Dietary Services In El-Minia University Hospital**

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Abstract

Background: Therapeutic nutrition is based on modifications of the nutrients in a normal diet to help a patient to overcome a specific illness. Many hospitals fail to give nutritional care enough priority in their day-to-day practice. The objective of this study is to describe patient and hospital personnel satisfaction with hospital dietary services and to investigate sanitary status of food presented to patients and hospital personnel by microbiological examination. Health education of kitchen workers about sanitary rules in the kitchen was conducted. **Methods:** hospital based study which was conducted among 492 people (321 patients, 81 physicians, 42 nurses, 20 workers and 28 kitchen workers) from November 2011 to July 2012. Data were collected using an interview-administered questionnaire included socio demographic data, data about satisfaction with hospital food in patients, medical/ paramedical and kitchen workers satisfaction with hospital food. Workers in kitchen asked about sanitary rules in the kitchen. **Results:** Satisfaction with hospital food was highest in kitchen workers group 91.3 %, followed by workers group 72%, then nurses group 71.4%, patients group 67.3 % and all physicians weren't satisfied with hospital food 100%. Patients eat external food were 72% and only 17.8% of patients know the suitable food for their disease. Only 66.0 % of kitchen workers have valid health certificate. 60.2 % of kitchen workers know the presence of insects and pets in the kitchen. **Conclusion:** All physicians weren't satisfied with hospital food. All patients didn't receive any instructions from physicians about special food for their disease. There was a significant improvement in knowledge regarding diseases transmitted through food and reporting to supervisor about having diarrhea or abscess.

Key words: Therapeutic nutrition, valid health certificate and Food safety.

Introduction

Therapeutic nutrition is based on modifications of the nutrients in a normal diet to help a patient to overcome a specific illness and this requires coordination of the medical, nursing and dietary staff. Many hospitals fail to give nutritional care enough priority in their day-to-day practice⁽¹⁾.

The importance of safe food for hospitalized patients and the effect of contaminated food on their recovery have been emphasized. Patients receiving foods from a single kitchen with poor food handling practices could suffer a food borne infection which could result in an outbreak involving the whole hospital⁽²⁾.

Outbreaks of food borne infections in hospitals are preventable but are facilitated by several factors; these include staff carriers, poor hygiene conditions in the kitchens, carelessness, and lack of training of food handlers. The particular danger of contaminated food in hospitals is that such food is given to consumers in poor health⁽³⁾

Hospital patients require normal or therapeutic diet. Therapeutic nutrition is based on modifications of the nutrients in a normal diet to help a patient to overcome a specific illness⁽⁴⁾. The care of hospitalized patients takes into account various physiological, psychological, cultural, social and economical factors that can affect their

nutritional status. Meeting the patient's nutritional needs involves the coordination of the medical, nursing and dietary staff⁽⁶⁾.

Depends on the above back-ground, it was decided to undertake this study with the aim of describing patient and hospital personnel satisfaction with hospital dietary services, more over this study aimed to investigate sanitary status of food served to patients and hospital personnel by microbiological examination. In addition health education of kitchen workers about sanitary rules in the kitchen was performed.

Subjects and Methods

Study design: Descriptive hospital based study with intervention, which carried out in El-Minia University hospitals during the period from November 2011 to July 2012.

Administrative and ethical consideration:

An approval was taken from the manager of El-Minia University Hospitals to obtain data about number of beds in hospital departments included in the study and obtain data about kitchen workers and food preparation, interviewing patients, medical, paramedical personnel and kitchen workers.

Following the ethical guide-lines of epidemiological research, a written informed consent was taken from each participant.

Study population

Criteria of people participating in study:

1- Hospital personnel, patients in General medicine, General surgery, Pediatrics, Gynecology & Obstetrics and Renal dialysis departments and kitchen workers patients in El-Minia University hospitals.

2- Both males and females were included in the study.

3- No age limitation.

Criteria of people excluded in study:

- Patients receiving parenteral nutrition.
- Comatosed and terminal illness patients.

Collection of data: Data were collected by a designed well-structured questionnaire including socio demographic data: gender, residence, educational level and occupation. Data about satisfaction with hospital food from patients, medical/ paramedical and

kitchen workers were collected. In addition, kitchen workers knowledge of sanitary rules in the kitchen was collected.

Statistical analysis:

Data entry and analysis were all done with I.B.M. compatible computer using software called SPSS for windows version 17. Graphics were done by Microsoft office Excel 2007.

Qualitative data were presented by mean and standard deviation, while qualitative data were presented by frequency distribution. Chi square test and fisher's exact were used to compare between proportions. Z Test of proportion was used to compare between two proportions. The probability of less than 0.05 was used as a cut off point for all significant tests.

Results

Regarding sociodemographic characteristics of patients group, males were 114 (30.0%) while females were 207 (60.0%) of the group. Regarding residence 138 (42%) of patients from rural areas and 183 (50%) of patients from urban area.

Regarding job, 81 (24.8%) physicians, 42 (12.4%) nurses and 20 (6.0%) workers. In kitchen workers group, it was found that, males were 43 (12.4%), while females were 16 (4.6%) of the group. There was only one kitchen manager that representing (0.3%). Workers were 9 representing (2.6%), cooker were 6 representing (1.7%) and 4 persons were nutrition specialist representing (1.2%). Regarding residence, 18 (5.2%) persons from rural areas and 2 (0.6%) persons from urban area.

It was found that satisfaction were highest in kitchen workers group 91.2%, followed by workers group (82%), then nurses group (71.4%). Patients' satisfaction with hospital food were 24.3% and all physicians weren't satisfied with hospital food (0.0%), (Fig. 1).

Figure (2) showed kitchen workers have valid health certificate in the studied kitchen workers group. It was found that only 26.0% of kitchen workers have valid health certificate in the studied kitchen workers group.

There was no relationship between having valid health certificate and satisfaction with kitchen ventilation, kitchen utensils and food storage in kitchen workers group. It was found that ٦٩.٢% of kitchen workers with valid health certificate were satisfied with kitchen ventilation, while only ٢٠% of kitchen workers without valid health certificate were satisfied with kitchen ventilation. All kitchen workers don't have valid health certificate were satisfied with kitchen utensils and food storage in the kitchen. About ٨٤.٦% of kitchen workers with valid health certificate were satisfied with kitchen utensils and food storage. These differences were not statistically significant ($p= ٠.١$, ٠.٠٩ and ٠.٠٩ respectively), (Table ١).

There is improvement in knowledge regarding keeping kitchen clean of insects and diseases transmitted through food by (١٧.٤% and ٩١.٣% respectively) and this was statistically significant ($p= ٠.٠٢$ and ٠.٠٠٠١ respectively), while percent change wearing mask in having cough or flu was ١٧.٤% and this was statistically not significant ($p= ٠.٢$). It was found that there is improvement in knowledge regarding reporting to supervisor about having diarrhea, abscess by ٤٧.٨% and this is statistically significant ($p= ٠.٠٤$), (Table ٢).

The most important factors affecting satisfaction with hospital food in patients group were residence, sex and department ($p=٠.٠٠٠١$ respectively), while the least factor was knowledge about food suitability for their diseases (٠.٩), (Table ٣).

Examination of randomly selected meal (meat and rice) sample in two different laboratories (Ministry of Health laboratory food poisoning in Minia as well as in private laboratory in Minia) were negative for E. coli, Staphylococcus aureus and Streptococcus.

Table ١: Relation between having valid health certificate and satisfaction with kitchen ventilation, kitchen utensils and food storage among kitchen workers group in El-Minia University Hospital, Egypt from November ٢٠١١ to April ٢٠١٢.

	Having valid health certificate (n=١٣)	Not having valid health certificate (n=١٣)	Z	P
satisfaction with kitchen ventilation	٦ (٦٩.٢%)	٢ (٢٠%)	١.٢	٠.١
satisfaction with kitchen utensils	١١ (٨٤.٦%)	١٠ (١٠٠%)	١.٣	٠.٠٩
satisfaction with food storage	١١ (٨٤.٦%)	١٠ (١٠٠%)	١.٣	٠.٠٩

Table ٢: Knowledge of kitchen workers pre- and post-health education in kitchen workers group in El-Minia University Hospital, Egypt from November ٢٠١١ to July ٢٠١٢.

Knowledge	Pre -	Post -	% change	z	p
Keeping kitchen clean from insects	١٩ (٨٢.٦%)	٢٣ (١٠٠%)	١٧.٤ %	٢.١	٠.٠٢
Diseases transmitted through food	٢ (٨.٧%)	٢٣ (١٠٠%)	٩١.٣ %	٤.٨	٠.٠٠٠١
Wearing mask in having cough or flu	١٠ (٤٣.٠%)	١٤ (٦٠.٩%)	١٧.٤ %	٠.٨	٠.٢
Reporting to supervisor about having diarrhea abscess	٤ (١٧.٤%)	١٠ (٦٠.٢%)	٤٧.٨ %	١.٧	٠.٠٤

Table 3: Multiple regression analysis of factors affecting satisfaction with hospital food among patient group in El-Minia University Hospital, Egypt from November 2021 to April 2022.

Factors affecting satisfaction with hospital food	Beta	t	p
Residence	0.32	6	0.0001
Sex	0.31	0.7	0.0001
Department	0.23	4.2	0.0001
Knowledge about food suitable for their diseases	0.006	0.1	0.9

N.B. dependent variable is satisfaction with hospital food
 $R^2=0.47$.

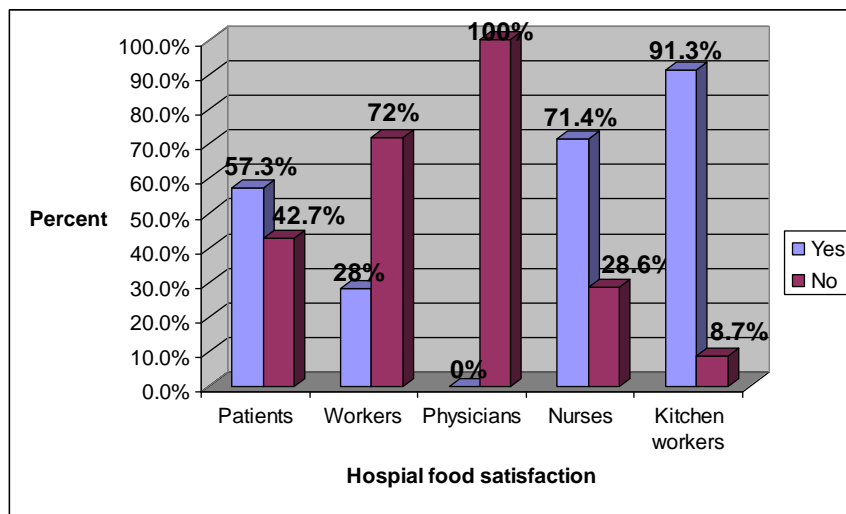


Figure 1: Satisfaction of studied groups with hospital food in the studied groups in El-Minia University Hospital, Egypt from November 2021 to July 2022.

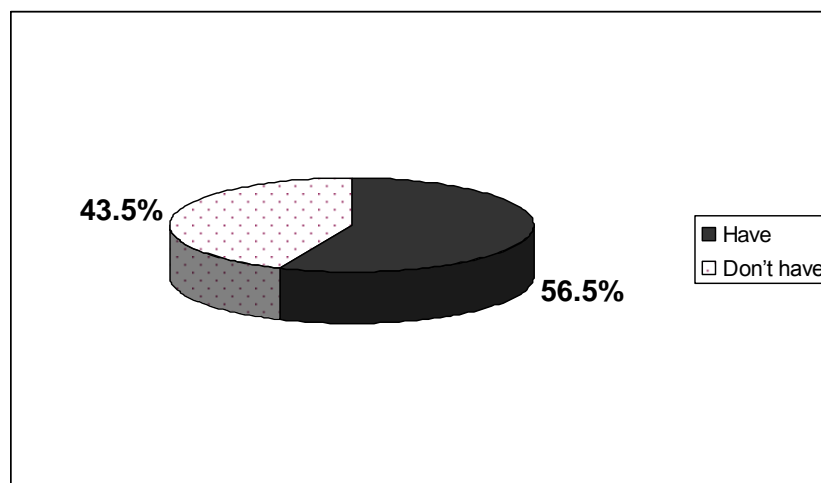


Figure 2: Kitchen workers have valid health certificate among the studied kitchen workers group in El-Minia University Hospital, Egypt from November 2021 to April 2022.

Discussion:

Therapeutic nutrition is based on modifications of the nutrients in a normal diet to help a patient to overcome a specific illness and this requires coordination of the medical, nursing and dietary staff⁽¹⁾. There is a great need for education and increased awareness among food services staff in hospitals regarding safe food handling practices⁽²⁾.

According to table (2) kitchen workers have valid health certificate were more satisfied with kitchen ventilation 79.2% than kitchen workers don't have valid health certificate 20%, while satisfaction with kitchen utensils and food storage was higher among kitchen workers don't have valid health certificate 100% than kitchen workers have valid health certificate 84.6% and this is in agreement with Tokuc et al., (2009)⁽³⁾ study in Edirne General Hospital, Turkey that kitchen workers have valid health certificate were more satisfied with kitchen ventilation 82.0% than kitchen workers who don't have valid health certificate 69.8%, while satisfaction with kitchen utensils and food storage was higher among kitchen workers don't have valid health certificate 93.4% than kitchen workers have valid health certificate 88.2%.

According to table (3) the most important factors affecting satisfaction with hospital food among patients group were residence, sex and department, while the least factor was knowledge about food suitable for their diseases. This is in agreement with Maureen et al., (2011)⁽⁴⁾ in Miami-Jackson Memorial Hospital, Miami, Florida, United States of America who revealed that a logistic regression model was estimated in determining the most important and statistically significant factors affecting patient satisfaction with hospital food and food services. The results showed that sex, residence were the most effective factors patient satisfaction with hospital food.

As illustrated in figure (1) satisfaction of studied groups with hospital food. It was found that kitchen workers group had the highest percent of satisfaction 91.3%, followed by workers group 72%, then nurses group 51.4%, patients satisfied with hospital

food were 04.2% and all physicians weren't satisfied with hospital food, this differ from a study by Guirguis et al., (2000)⁽⁵⁾ in Western Country Hospital, Kuwait that physicians have the highest percent of satisfaction 93% followed by workers 89%, nurses 87% and finally patients 83.0% and this is due to luxury in services for physicians and overall hospital environment and facilities. Kitchen workers in the current study were fear of being punished if they criticize hospital food.

A study In Arizona Central Hospital, United States of America by Meer et al., (2008)⁽⁶⁾ over 32 kitchen workers reported that all kitchen workers had valid health certificate renewed every year with periodic examination every three months. Although health certificate is mandatory in Egypt, this study revealed that only 06.0% of kitchen workers have valid health certificate according to figure (2) the rest of workers didn't have valid health certificate because they are temporary workers. However, this not an excuse to allow them to work as food handlers without valid certificate. This difference is due to strict regulations over food handlers especially in hospitals in USA. This position focuses attention towards lack of supervision in recruitment department.

Conclusion and Recommendation:

All physicians weren't satisfied with hospital food. All patients didn't receive any instructions from physicians about special food for their disease. There was a significant improvement in knowledge regarding diseases transmitted through food, wearing mask during cough or flu and reporting to supervisor about having diarrhea or abscess. Valid health certificate is mandatory for working in the hospital kitchen. Physicians should prescribe special food for each disease. Serving of food should be in a human manner.

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