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Receiving and Storing Foods: The Procedures Followed in the Central Restaurants at University Dormitories

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Abstract

Because of the importance of the nutritional meals in hosting organizations and what result of attracting or dismissing the clients, it's a must to pay attention to the nutritional meals through caring for the food circle beginning with the stage of purchasing the raw food materials until the stage of service and selling. As the central restaurants at the university dormitories have a great importance concerning of preparing and introducing foods for students, it's necessary to pay attention to the two stages of receiving and storing as they are two essential stages in the food cycle.

The study aims at knowing the right procedures used in receiving and storing at the central restaurants at the university dormitories. The researchers put 6 hypotheses to measure the receiving and storing procedures at university dormitories.

The study is applied for the central restaurants at the university dormitories of Minia, Assuit and Sohag universities. The sample of the study consists of two groups; the managers of the central restaurants (3 managers) and the workers in places of receiving and storing nutritional materials and products (11 workers). The researchers designed two instruments for the research: questionnaire and personal observation checklist. The data have been collected and analyzed via using the statistical SPSS V. 20.

The most important results were that there is no high level of acceptance receiving and storage procedures in central restaurants at the university dormitories. Also, training programs applicable to the employees of central restaurants at the university dormitories do not have a strong impact on the performance of employees to improve the receiving and storage procedures. Additionally, there are significant differences between the hygiene levels in the central restaurants at the university dormitories and the established hygiene levels.

The researchers recommend that food received or used in central restaurants at university dormitories should be from sources approved by the health department. Also, it must be clean, wholesome free from spoilage and misbranding; the food must have been received and stored in a sanitary manner; also, there should be check that the delivery vehicle is clean. In addition, reject the foods if the vehicle is dirty or if there is evidence of pests; Check that the temperatures of refrigeration and freezer units on the vehicle are at the correct temperatures: at or below 4°C for refrigeration units and below -18°C for freezers; Also, Storerooms at central restaurants at university dormitories should be well ventilated, free of dampness and free of pests and bugs; additionally check the temperature of the freezer on both the built-in and the portable thermometers to ensure that the freezer temperature is below -18°C; finally, it should be give attention to employees training programs who work in receiving and storage area with concentrate on food hygiene programs.

Keywords:

Central Restaurants, University Dormitories, Receiving, Storing, SPSS

Introduction

Food cycle:

Menu planning in any of foodservice operation type is one of the most important processes (Khan, 1998). Ninemeier and Perdue (2005) defined it as the process of determining the food and the beverage items to be offered by the foodservice operation that will please guests while generating acceptable revenue and/or cost objectives. Also, Lattin (1995) added that the menu is the beginning of foodservice processes.

Hoof et al. (1996) indicated that menu planning includes food items and ingredients demanded for production. The food items and ingredients will be known after planning the menu, and then they must be purchased (Ninemeier and Perdue, 2005). Paul and Demond (2006) agreed with Powers and Powers (1984) in that purchasing is defined as the needs determination and the orders placement with the suppliers who offer the lowest price. After purchasing food items and ingredients, they should be received. Receiving is defined by Cornelius and Cronan (1979) as checking in all purchases as delivering them. On the other hand, Ninemeier and Perdue (2005) agreed with Rande (1996) in the definition of receiving as changing the goods ownership (food items) from a supplier (foodservice distribution) to a purchaser (foodservice operator).

After receiving, the food items should be stored well according to the correct conditions, temperature, etc. Storing is defined by (Foskett et al. 2003, Cornelius and Cronan, 1979) as "putting away the supplies in the store room, refrigerator, freezer, or cupboards".

Hoof et al. (1996) mentioned that each food items has storage standards. They also stated that storage is designed to keep the quality of the product while reducing losses due to pilferage, theft, and spoilage. Cornelius and Cronan (1997) defined issuing as supplying each department with their called for items. Davis et al. (1999) defined food production as "the processing of raw, semi prepared, or prepared food stuffs". Ninemeier and Perdue (2005) defined it as "the process of readying products for consumption".

Davis et al. (1999) defined foodservice as the food delivery and presentation to the customer, after the completion of food production. They also stated that there are numbers of methods related to foodservice and there are essential requirements should be met by any one of them.

Food receiving:

Receiving is the first control point in the food flow through a caterer's facility. So, a careful attention can reduce defect which may result in potential problems throughout the entire system (Shiring et al. 2001).

According to Puckett and Ninemeier (1993) receiving means checking the delivered foods or meals from vendors for: correct item, specified quantity, quality, food safety criteria, and accept or reject food depending on receiving criteria. Also, Robinson (2012) assured that all food should be in excellent condition when they arrive. The food quality and temperature should be monitored closely at delivery. Also, times of delivery for slow periods should be planned. In addition, Robinson (2012) added that areas of storage should be cleaned prior to the receiving shipments, so food can be stored immediately. The areas of storage should be clean and well-lit to prevent pest. Sanitary carts and dollies should be available.

Food Marketing Institute (2015) agreed with Catering and Retail Premises (2008) in that food business must pay attention to all practicable measures to ensure that they receive the safe and suitable food. This included that the received food must be protected from contamination and it is at the correct temperature when it arrives, if it is potentially hazardous.

U.S Food and Drug Administration (2012) agreed with Kendall and Diamond (2010) in that proper food storage helps to keep the quality and nutritional value of the purchased food. Also, it helps make the most of food are valuable. Also, food borne illness caused by harmful bacteria can be prevented. Additionally, use fresh foods soon after they are harvested. Moreover, signs of spoilage, which aren't bacterial hazards, are the rancid odour and flavor of fats. In addition, these signs slime on the surface of meat and the fermentation of fruit juices. Dangerously, off-odours in foods and a sour taste in bland foods can indicate bacterial spoilage. On the other hand, a high bacteria count can be in food even if without these signs.

Receiving process producers:

According to NSW Food Authority (2011), only receive potentially hazardous foods that have been transported under temperature control.

Once food is received, it must be placed under refrigerated storage; keep them hot, or display them immediately with the time recorded. Also, check the received food temperature which must be either below 5°C or above 60°C; Finally, any temperature outside this range should be recorded and the food either rejected or an assessment made as to its safety.

According to a Guide to the Food Safety Standards (2001), a food business must take all practicable measures to ensure that it only accept the protected food from the contamination likelihood. Additionally, a food business must provide the following information: the name and the business address in Australia of the vendor, manufacturer or packer, or the name and business address of the importer. Moreover, the prescribed name or an appropriate designation of the food is required.

Roberts (2001) agreed with Sullivan and Atlas (1998) in that the receiving process steps are: planning for delivery and have tools for receiving ready; visually, check all items and search for container damage signs; check and record temperatures of frozen items; check off items on invoice; check for substituted products; reject unacceptable goods; sign the invoice; finally, date the food packages.

National Foodservice Management Institute (2008) stated that the tools for receiving are thermometers and temperature logs. Also, the temperature of foods received by the following: Placing the thermometer under the top layer of goods; placing the thermometer through a hole in an unopened case; placing the thermometer inside the package; and placing the thermometer between the folds of a folded Package.

Food Storage:

Business Integrated Standards Executive (2012) defined storage as keeping all potentially hazardous foods and ingredients under temperature control until use or displays them. In addition, food must be covered and the cool room temperature should be checked and recorded periodically to ensure they are running at 5°C or below.

Robinson (2012) also defined food Storage as foods which should be protected from time and temperature abuse according to the available storage space; keep food in specified rooms not in restrooms or hallways; don't store frozen or dry food on the floor or under overhead pipes; it should be place food on shelves or on moveable equipment; space foods

so air can freely flow around. In addition, monitor expiration dates and rotate stock. Finally, use the "FIFO" principle [i.e. first in, first out].

National Restaurant Association (2001) stated that frozen food should be stored below 0°F in moisture proof, gas-impermeable plastic or freezer wrap. Also, assured to label and date frozen foods. Additionally, frozen foods quality may diminish though they may be safe if stored beyond the recommended storage time. Sometimes, the freezer efficiency will lower if the consumers overload it and block the coolant circulation.

According to the American Meat Institute Foundation (1994) stock only the food kinds and amounts can store properly i.e. a clean refrigerator and freezer, avoid overcrowding the refrigerator, arrange items, reduce loss of dehydration and quality, use freezer wrap, the plastic bags of the freezer quality or aluminium foil for items that will be stored more than two months. All the previous measures use to retain the quality and nutritive value.

Storing process procedures:

National Foodservice Management Institute (2004) stated that these procedures: Generally, store items using FIFO. At first, the old supplies are to be stored in front of the new ones in order to use the old first, food and chemicals are to be stored separately. Then, date foods and place the new behind the current stock. Additionally, food is to be kept in clean and containers are to be sturdier to prevent pest and rodent infestation. It should be keep food away from the walls and off the floor. Finally, keep the shelving and floor clean. Dry Storage Practices: dry foods should be stored in a well-ventilated room. Also, the storage area temperature should be maintained between 50° F and 70° F. Besides, use FIFO; avoid storing food under exposed waste or sewer lines. Lastly, opened packages should be stored in closed, sturdy, labelled containers. Moreover, chemicals, cleaners and pesticides should be stored away from Food products. Frozen storage practices: foods are to be stored between 0° F and -10° F. FIFO is to be used and food is too wrapped to prevent freezer burn. In addition, the freezer is to be defrosted as needed. Finally, keep the shelving and floor clean.

According to Robinson (2012) food premises should: Use foil, plastic wrap, plastic bags or airtight containers; moisture and vapor-proof materials are best; to reduce food odors, clean your refrigerator regularly; remove spoiled foods immediately; store foods at cool temperature (34 to

40 degrees Fahrenheit is best) as perishable foods stored above 40 F rapidly spoil; use foods quickly and don't depend on maximum storage time. Finally, freezer foods in containers or materials prepared for freezer storage and keep the freezer clean at 0 F or less.

According to Boyer and McKinney (2013) and a Food Safety programs-Guide to Standard 3.2.1 (2007) agreed in that determined Standard temperature guidelines for receiving and storing foods are follows:

Table (1): Standard temperature guidelines for receiving and storing foods

Type of food	Receiving criteria	Storage criteria
Poultry, meat, fish:	Refrigerated: 5°C (41°F) Frozen: -10°C (0°F) or below	Refrigerate at: 41°F (5°C) for immediate use Freeze: 0°F (-18°C) or below
Shellfish clams, oysters, mussels, scallops:	Live: on ice or at air temp of ≤ 7°C (45°F) Shucked: at an internal temp of ≤ 7°C (45°F) Refrigerated: ≤ 5°C (41°F) Frozen: ≤ -10°C (0°F)	Refrigerate at: 41°F (5°C) for immediate use Freeze: 0°F (-18°C) or below
Eggs: fresh shell, liquid, frozen, dehydrated	Whole eggs: 7°C (45°F) Liquid Eggs: 5°C (41°F) Frozen eggs: -10°C (0°F) or below	Refrigerated at: ≤ 7°C (45°F) until use. Frozen: ≤ -18°C (0°F) Use eggs within 3 weeks of packing date - Dried egg products: store in a dry and cool storeroom, but should be refrigerated at ≤ 5°C (41°F) when reconstituted (mixed with water).
Dairy: milk, cheese, cream, ice-cream	≤ 5°C (41°F) unless otherwise specified by	Refrigerator: ≤ 5°C (41°F)

	law	Freezer (ice cream): -14°C to -12°C (6°-10°F)
Refrigerated ready to eat foods (pre-cut meats, salads incl. salads with potentially hazardous foods)	≤ 5°C (41°F) unless otherwise specified by manufacturer. If labeled frozen, must be received frozen at -14°C to -12°C (6°F to 10°F)	Store refrigerated at: ≤ 5°C (41°F) or Frozen: -14°C to -12°C (6°F to 10°F)
Frozen processed foods	Receive frozen at -18°C to -12°C (0°F to 10°F)	Store at Frozen: -18°C to -12°C (0°F to 10°F)
Produce: (fruits, vegetables, ground provisions)	Cut melon (a potentially hazardous food) must be held at 41°F (5°C) or lower	Fruits and vegetables at: 4-6°C (40-44°F) or lower. Ground provisions (potatoes, etc.): 7°C to 9°C (45°F to 50°F)
Canned foods/ Dry foods (flour, sugar, rice, spice pasteurized and aseptically packaged foods (puddings, juices, creamers, milk)	Room temperature Aseptically packaged: room temperature. Not aseptically packaged: follow manufacturer's directions or ≤ 41°F (5°C)	Store between 10°C-21°C (50°F-70°F) Relative humidity at 50-60% Aseptically packaged: room temperature. On opening, store at ≤ 5°C (41°F) Not aseptically packaged: store at ≤ 5°C (41°F)
Baked goods	Receive at the temperature specified by the manufacturer	Follow manufacturer's instructions or store baked goods at ≤ 5°C (41°F)
Potentially Hazardous	Hot at 135°F (57°C) or higher	Store refrigerated at: ≤ 5°C (41°F)
		Frozen: -14°C to -

Foods, raw or cooked	Cold 5°C (41°F) or lower.	12°C (6°F to 10°F) Hot at 135°F (57°C) or higher;
Catering and Vending	Hot at 135°F (57°C) or higher Cold 5°C (41°F) or lower	Hot hold at: 57°C (135°F) or higher for no more than 2 hours. Cold hold at: 5°C (41°F) or below

Handling Food Safety:

California Retail Food Code (2016) agreed with USDA (2007) in these ten rules for handling food safety:

1. All employees must follow strict personal hygiene policies.
2. Potentially hazardous foods should be identified on the menu, and safe handling procedures should be established for each.
3. Food must be obtained from approved suppliers
4. Time/temperature abuse must be avoided when handling prepared foods.
5. Potentially hazardous raw foods must be kept separate from ready-to-eat foods.
6. Cross-contamination must be avoided: Establish hand washing guidelines. Wash, rinse and sanitize all food contact surfaces.
7. Foods must be cooked to recommended internal temperatures.
8. Hot foods should be held hot (135° F or greater) and cold foods held cold (41° F or lower).
9. Foods must be cooled from 135° F to 70° F in 2 hours or less and from 70° F to 41° F in 4 hours or less.
10. Leftovers must be heated to 165° F for at least 15 seconds within 2 hours. Leftovers only should be reheated once.

Problem of the study

As the university dormitories with their central restaurants are places that introduce different meals (breakfast, lunch and dinner) for students, it's a must to do a study to pay attention to the procedures followed in receiving and storing the food items introduced at these places due to the bad effects of not applying the right receiving and storing procedures on

the food ingredients and the healthy affairs at storing and receiving places, moreover, their results of food poisoning, food infection and at most times stealing the food materials and food products.

Importance of the study

The receiving and storing are considered to be the most important processes in foods introducing places. As the university dormitories are one of the most important places to introduce food and beverage for students, the healthy affairs of the foods field have to be known and its should apply the right procedures followed in receiving and storing stages especially and in the food cycle stages generally to maintain the safety and the health of our students.

Aim of the study

To ensure that all food is received fresh and safe when it enters the foodservice operations at central restaurants of university dormitories, all food is transferred to the proper storage as quickly as possible, and to ensure that all food is stored in a manner that maximizes both quality and safety of the food served.

Hypotheses

To achieve the previous purpose of this study, the researchers have identified hypotheses which have been tested during the present investigation:

H1: The central restaurants at university dormitories have high levels of food receiving procedures with 95% confidence interval for percentage.

H2: The central restaurants at university dormitories have high levels of food storing procedures with 95% confidence interval for percentage.

H3: The level of training programs has no significant influences on the receiving procedures levels in the central restaurants at university dormitories.

H4: The level of training programs has no significant influences on the storing procedures levels in the central restaurants at university dormitories.

H5: The central restaurants at university dormitories have high levels of hygiene with 95% confidence interval for percentage.

H6: There are no statistically significant differences between hygiene levels in the central restaurants at university dormitories and the established hygiene standards.

The study limits

The study is made upon three central restaurants at the university dormitories (Minia, Assuit and Sohag) at places of receiving and storing foods. The study is made within the period from May, 2014 to August, 2016.

Methodology

To check the hypothesis validation, the researchers designed two instruments for the study. They are questionnaire which was used for the managers and employees of the central restaurants at the university dormitories and the personal observation checklist which was used in places of receiving and storing the raw food materials and the ready foods. The two scales have been judged by experts in nutrition field, thus the two scales were adopted in terms of reliability and validity. In addition, the experts committee recommended the standard level of hygiene (0.9) as a measure of hygiene should be in central restaurants at university dormitories. This level has been relied upon to test the six hypothesis validation.

Reliability Analysis

Table (2): Reliability analysis of the independent variables used in the research

The Axis	No. of statements	Alpha Coefficient
Age	1	Objective measure
Gender	1	Objective measure
Educational qualification	1	Objective measure
Occupational position	1	Objective measure
Experience years	1	0.615

General receiving procedures	6	0,8
General storing procedures	2	0.866
Food items receiving procedures	31	0.713
Hygiene affairs	28	0.822
Training programs	4	0,73

Alpha Coefficient is a model of internal consistency, based on the average inter-item correlation (Beshere, 2003). As mentioned in the previous table, Alpha Coefficient for all variables was above the minimum acceptable level of 0.60 suggested by Hair et al., (1998), so that the study measurements were acceptable and reliable.

Response Rate

This study was targeted both of managers and employees of 3 university dormitories at Minia, Assuit and Sohag cities. All target managers and employees were contacted; all 3 managers and just 11 employees (from 17 employees) positively shared the interview. This gave a response rate of (70 %).

Table (3) Factor analysis of the research variables

The Axis	Loadings
General receiving procedures	0.78
General storing procedures	0.75
Food items receiving procedures	0.71
Hygiene	0.73
Training programs	0.83

Percent of variance	76%
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According to Beshere (2003) factor analysis attempts to identifies underlying variables or factors that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. Bahy et al, (2004) reported that acceptable level of loading value is (o.5) for the variable.

Factor analysis shown in table (3) attempted to identify underlying variables or factors that explain the pattern of correlations within a set of observed variables. Factor analysis declared that all five items were loaded on a single factor and explained 76% of the variance in the underlying variable of research.

Findings and Discussion

Table (4) Sample characteristic

Variable		No.	Percentage %
Position	Manager	3	21.4
	Employees	11	68.6
Experience	Less than one year	8	57
	1-3 years	6	43
	4-6 years	0	0
	More than 6 years	0	0
Educational qualification	post-graduate	0	0
	Graduate	12	86
	Secondary or diploma	2	14
	Other	0	0

The survey results showed that 21.4 % of the sample work as managers of the central restaurants at university dormitories, the majority 78.6% work as employees between workers and officials of the purchasing and the receiving.

In terms of employees' experience years turns out that more than half of the survey sample (43%) have less than one year of experience and they have experience of more than two years to less than three years. This indicates that most of the workers of the central restaurants at university dormitories are young people who have no experience in the nutritional field. In addition, employment in these jobs depends on experienced years and this is not available.

The results also showed the quality of educational qualifications for workers at central restaurants was 86% have a university degree and 14 % have secondary education or a diploma.

Table (5) Descriptive Statistics of questionnaire

Variable		No.	Percentage %
Knowing enough information about the food quality attributes	Yes	14	100
	No	0	0
Receiving foods according to the food purchasing specifications list	Yes	12	86
	No	2	14
Receive fresh foods according to the sensory attributes	Color	13	93
	Flavor	2	14.3
	Size	14	100
	Weight	14	100
	General appearance	10	71.5

Having the required records to receive foods	Yes	4	28.5
	No	10	71.5
Required records for receiving	Food purchase specifications list	3	75
	Purchase order	2	50
	Market purchasing list	4	100
	Receiving invoice	2	50
	Daily receiving report	1	25
	Credit memorandum	4	100
	Meat tags	3	75
Having the required equipment and tools to receive food	Yes	12	86
	No	2	14
Receiving equipment and tools	Large and small scales	12	100
	Wheeled equipment (trolley)	10	83.3

	Box cutter	11	91.6
	Thermometer	4	33.3
	Calculators	12	100
	Receiving Tables	10	83.3
	Records area (desk, office supplies...)	7	58.3
Received according to the specified quantities	Yes	14	100
	No	0	0
Received according to the specified prices	Yes	14	100
	No	0	0
Quality and safety procedures	Yes	14	100
	No	0	0

The results showed that the sample of the study 100% have sufficient information about food sensory attributes, and this is the result of dealing with different foods during the repeated processes of receiving and storing in restaurants.

It was seen from the above table that 86% of the food are received according to the food purchasing specifications list in the central restaurants at university dormitories and the rest 14% receive food without food purchasing specifications list. This is agreed with Levinson (1989) who reported that there are two types of standard purchase specifications that concern the buyer and seller, general and product specifications all establishments use them.

The sample results indicated that the raw food materials receiving in central restaurants on the basis of quality attributes are as follows: the

size and weight 100%, 93% color, the general appearance 71.5 %, and finally flavor 14.3 %. This indicated that there was an application of good procedures of receiving for some food raw materials in terms of size, weight, color and general appearance for some other food materials. This is agreed with (Parker, 2003) who stated that quality of a food product involves maintenance or improvement of the key attributes of the product including size, weight, color, flavor, texture, safety, healthfulness, shelf life, general appearance and convenience.

With regard to the availability of the necessary documents for food receiving process was 28.5 % have available documents, and 71.5 % do not have receiving documents.

The results also showed that the necessary and required documents to receive food were as follows: market purchasing list 100%, whereas most of university dormitories based on the market price to buy most of the raw food materials. 100 % credit memorandum for its importance in the case of suppliers purchase breach contracts. 75% for each of the meat tags and food purchase specifications list to ensure the quality of received meat, 50 % for each one of the purchase order and receiving invoice. Finally, daily receiving report 25%, although its importance. This is agreed with (Stefanelli, 1997), (Haines, 1996) in that the receiving employees must be equipped by documents which enable them to achieve their duties in a complete phase and to ensure that the receiving process is performed properly. These documents also are important to control the foodservice operations.

With regard to the availability of necessary equipment and tools to carry out food receiving, 86% of the investigated sample has the required equipment and tools to receive food, and 14% non- presence.

As for the types of equipment and tools, the results showed that the central restaurants at university dormitories use the following tools: large and small scales 100%, box cutter 91.6 %, and wheeled equipment (trolley) and receiving tables for raw materials 83.3 %, the business office clerical 58.3 %, and finally thermometers to measure food temperature 33.3%. This is agreed with (Miller et al., 2002) who confirmed that the receiving clerk, like any worker, needs the -proper equipment to do an efficient job. While the tools and equipment vary by type and size of operation, some items are standards in any receiving operation.

The results also showed that the entire sample 100% receives and store food raw materials according to the quantity, quality and price agreed with suppliers' food quality.

Table (6) Descriptive Statistics of observation list

The Axis	Mean of percentage	95% Confidence Interval for percentage	Attitude
General receiving procedures	50%	9 - 92%	low level
General storing procedures	46.8%	37-56%	low level
Food items receiving procedures	48.9%	45.7- 52%	low level
Hygiene	54.7%	26.8-82.5%	Low level
Training programs	58%	34-82%	moderate level

95% Confidence Interval for Mean of the study population =

$$\bar{X} \mp t_{0.025,55} * Std.Error$$

From the previous table it obvious that 95% confidence interval for percentage of “general receiving procedures” was between 9% as a lower bound and 92% as an upper pound , 95% confidence interval for percentage of “general storing procedures” was between 37% as a lower bound and 56as an upper pound,95% confidence interval for percentage of " food items receiving procedures” was between 45.7% as a lower bound and 52% as an upper pound, 95% confidence interval for percentage of "hygiene" was between 26.8% as a lower bound and 82.5% as an upper pound and95% confidence interval for percentage of "training programs" was between 34% as a lower bound and 82% as an upper pound. This meant that levels of receiving procedures applied in central restaurants at university dormitories have low levels with 95% confidence interval for percentage, and this result coincided that the first hypothesis of the study is invalid. Moreover, the levels of storing

procedures applied in the central restaurants at university dormitories have low levels with 95% confidence interval for percentage, and this result also coincided that the second hypothesis of the study is invalid. On the other hand, the levels of hygiene procedures applied in the central restaurants at university dormitories have low levels with 95% confidence interval for percentage, this result coincided that the fifth hypothesis of the study is valid.

The testing of the third and the fourth Hypothesis requires using of simple regression analysis to examine the interaction of selected variables as follow:

Table (7) Simple regression of adoption of training programs on the receiving procedures levels in the university dormitories

Statement	R	R2	Adjusted R2	F	Sig.	T	Sig.	Beta	Unstandardized coefficient	
									B	STD. Error
(Constant)						6.5	0.096		0.451	0.069
Training programs	0.5	0.25	0.23	0.333	0.66	0.57	0.667	0.5	0.067	0.116

To predict the goodness-of-fit of the regression model, the correlation coefficient (R), coefficient of determination (R2), and F ratio were examined. First, (R) value (0.5) referred that there is a low degree of correlation between training programs levels and the receiving procedures levels in the central restaurants at university dormitories. Second, the (R2) is 0.25, suggesting that 25% of the variation of procedures levels were explained by the adoption of training programs. Last, the F ratio, which explained whether the results of the regression model could have occurred by chance, had a value of 0.333 (p=0.66) and was considered insignificant. The previous results reported that the level of training programs have no significant influences on the receiving procedures levels in the central restaurants at university dormitories, this result coincided that the third hypothesis of the study is valid.

Table (8) Simple regression of adoption of training programs on the storing procedures levels in the university dormitories

Statement	R	R2	Adjusted R2	F	Sig.	T	Sig.	Beta	Unstandardized coefficient	
									B	STD. Error
(Constant)						3.1	0.196		0.5	0.158
Training programs	0.2	0.04	-0.9	0.042	0.871	-0.205	0.871	-0.2	-0.05	0.265

From the previous table it obvious that, (R) value (0.2) referred that there is a low degree of correlation between training programs levels and the storing procedures levels in the central restaurants at university dormitories. Second, the (R2) is 0.04, suggesting that just4% of the variation of storing procedures levels was explained by the adoption of training programs. Last, the F ratio had a value of 0.042(p=0.871) and was considered insignificant. The previous results reported that the level of training programs have no significant influences on the storing procedures levels in the central restaurants at university dormitories, this result coincided that the fourth hypothesis of the study is correct.

One-Sample T-test (with test value (0.9) suggested by the experts committee was used to test the sixth hypotheses of the research as follow:

Table (9) the differences between hygiene levels in the university dormitories and hygiene standards

Variable	hygiene standards
hygiene levels in the Mean	0.54
university dormitories	Sig. (2-tailed) 0.032
No.	3

To apply one-sample T-test, the value (0.9) was suggested from some experts because it was a suitable value that referred to a standard level of hygiene affairs applied in central restaurants at university dormitories. The results mentioned that the P-value were definitely less than .05 (0.032). So, the null hypothesis was rejected; this meant that there were statistically significant differences between hygiene levels in the university dormitories and the established hygiene standards. Thus, the sixth hypothesis of the research was rejected.

Recommendations

First: during receiving process:

1. Food received or used in central restaurants at university dormitories should be from sources approved by the health department. Also, it must be clean, wholesome free from spoilage and misbranding. The food must have been received and stored in a sanitary manner.
2. Food should be only accepted food from approved sources.
3. The delivery vehicle should be checked that it is cleaned. In addition, reject the food if the vehicle is dirty or if there is evidence of pests (mouse droppings, cockroach casings, cockroaches, flies, etc.)
4. Ensure that chemicals have been stored separately from food and food containers on the vehicle.
5. Check that the temperatures of refrigeration and freezer units on the vehicle are at the correct temperatures: at or below 4°C for refrigeration units and below -18°C for freezers.
6. Use a probe thermometer. Also, check that the internal temperature of refrigerated food is at or below 4°C and frozen food at or below -18°C.
7. Do not accept food that is spoiled, damaged, or past its 'best before' date. Also, reject products with broken boxes, torn bags or strange odors.

Second: during storing process:

1. Storerooms at central restaurants at university dormitories should be well ventilated, free of dampness and free of pests and bugs.
2. Bulk products such as sugar and flour, can be emptied into tightly covered, properly labeled approved containers to prevent outside contamination. Storage containers must have openings large enough to allow easy cleaning between uses.

3. Food cannot be stored in locker rooms, rest rooms, dressing rooms, garbage rooms, mechanical rooms, under sewer lines that are not shielded to intercept potential drips, under leaking water lines (including leaking automatic fire sprinkler heads) under Lines on which water has condensed or under open stairwells.
4. Products must be stored on shelves or platforms 6 inches from the floor to ensure adequate cleaning of the storeroom floor.
5. Check the temperature of the cooler on both the built-in and the portable thermometers to ensure that the cooler temperature is between 0°C and 4°C.
6. It should be store raw meats, poultry, fish and dairy products below cooked, prepared and ready to eat.
7. Check the temperature of the freezer on both the built-in and the portable thermometers to ensure that the freezer temperature is below -18°C.
8. It should be give attention to employees training programs who work in receiving and storage area with concentrate on food hygiene programs.

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الملخص العربي

استلام وتخزين الأغذية: الإجراءات المتبعة في المطاعم المركزية بالمدن الجامعية

نظرا لأهمية الوجبات الغذائية في منشآت الضيافة وما يترتب عليها من جذب وطرده للعملاء كان لابد من الاهتمام بالوجبات الغذائية من خلال الاهتمام بدورة الغذاء بدءا من مرحلة شراء الخامات الغذائية حتى مرحلة الخدمة والبيع، وباعتبار المطاعم المركزية بالمدن الجامعية من أهم أماكن تجهيز وتقديم الأغذية لطلابها، كان لابد من الاهتمام بمرحلتَي الاستلام والتخزين باعتبارهما مرحلتين مهمتين في دورة الغذاء.

تهدف هذه الدراسة الي معرفة الإجراءات الصحيحة المتبعة في عمليتي الاستلام والتخزين في المطاعم المركزية بالمدن الجامعية، وقد وضع الباحثان 6 فروض للدراسة لقياس إجراءات الاستلام والتخزين للمواد الغذائية بالمطاعم المركزية بالمدن الجامعية.

هذه الدراسة طبقت علي المطاعم المركزية بالمدن الجامعية بجامعة اسيوط والمنيا وسوهاج. وتكونت عينة الدراسة من مجموعتين أولهما مدرءا المطاعم المركزية وعددهم 3 مدرءا وثانيهما العاملين بأماكن استلام وتخزين الخامات والمنتجات الغذائية وعددهم 11 عاملا. وقد صمم الباحثان آداتين للدراسة: الأستبيان والملاحظة الشخصية. تم تجميع البيانات وتحليلها باستخدام برنامج ال SPSS الإحصائي اصدار 20.

من أهم النتائج التي توصل اليها الباحثان أنه لا يوجد مستوي عال من إجراءات الاستلام والتخزين المقبولة في المطاعم المركزية بالمدن الجامعية، أيضا برامج التدريب المطبقة للعاملين بالمطاعم المركزية لا يوجد لها تأثير واضح علي أداء العامل لتحسين إجراءات الاستلام والتخزين، بالإضافة الي وجود فروق ذات دلالة احصائية واضحة بين مستويات الشئون الصحية المطبقة في المطاعم المركزية بالمدن الجامعية ومستويات الشئون الصحية المقررة.

توصل الباحثان الي توصيات مهمة يجب اتباعها في عمليتي الأستلام والتخزين منها يجب أن يكون الطعام المستلم أو المستخدم في المطاعم المركزية بالمدن الجامعية من مصادر معتمدة صحيا وموثوق بها، وان تكون الأطعمة نظيفة خالية من الفساد والبيانات الخاطئة وأن يتم استلام وتخزين الأطعمة بأسلوب صحي. أيضا، يجب فحص عربات نقل الأطعمة والتأكد من كونها نظيفة بلاضافة الي رفض شحنة المواد الغذائية اذا كانت عربة نقل الأطعمة غير نظيفة أو يوجد بها قوارض أو فضلات الفران أو الصراصير أو الذباب. كما يجب فحص درجات حرارة التبريد والتجميد بالعربة والتأكد من كونها صحيحة، وأن وحدات التبريد 4° مئوية أو أقل، ووحدات التجميد -18° مئوية أو أقل. كما يجب أن تكون غرف التخزين جيدة التهوية وخالية من العطب والحشرات والقوارض. يجب التأكد من فحص درجات حرارة غرف التبريد والتأكد من كونها -18° مئوية أو أقل كذلك فحص غرف التبريد والتأكد من كونها 4° مئوية أو أقل. وأخيرا اعطاء دورات تدريبية للعاملين بالمطبخ خاصة العاملين في منطة الأستلام والتخزين مع التركيز علي برامج سلامة الأغذية.

الكلمات الدالة:

المطاعم المركزية، المدن الجامعية، الاستلام، التخزين، برنامج SPSS.