
ASSESSMENT OF FOOD ENVIRONMENT OF MANSOURA UNIVERSITY

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Abstract:

Background: Unhealthy diets are linked with numerous chronic diseases including cardiovascular disease, diabetes, osteoporosis, certain cancers, overweight and obesity. The rapidly increasing fast food outlets has created an alarming situation to practice unhealthy dietary habits. Food environment is the place where food is purchased and consumed and considered out of control of individuals. It influences access to food and believed to contribute to obesity. Understanding and assessing the food environment would provide guidance for actions that promote dietary habits. **Aim:** To assess food environment of Mansoura University. **Method:** A cross-sectional study was conducted among (17) food courts within Mansoura University, Egypt, from March to June 2014. **Results:** All food courts were fast food restaurants. All of food court's managers serve energy dense foods and beverages, few of them serve fresh fruits juices ,tea and coffee with skimmed or low fat milk, and none of them serve skimmed or low fat foods products and special diet for hypertensive or diabetic patients . Majority of them promote and place less healthy options of food and beverage where it is easily accessible to students. None of them increase price of energy dense foods or offer discount and subsidies on presented healthy items. In addition, none of them display signage or menu that are labeled with colored code or contained nutrition information about offered food and beverage. **Conclusion:** The study concluded that all food court's managers at the university campus lacked several basic practices to encourage more healthful dietary habits. **Recommendations:** It was recommended to develop a strategy to create a healthier food environment that encourage eating a more optimal diet .

Key Words: Unhealthy diets – Food environment – Fast food outlets.

Introduction:

Food is part of every one life. It provides both energy and materials needed to build and maintain all body cells[1]. Food intake and dietary habits play an important role in a person's physical, mental, and emotional well-being [2]. Unhealthy diets are linked with numerous chronic diseases including cardiovascular disease, diabetes, osteoporosis, certain cancers, overweight and obesity which have

been described as one of the largest societal challenges [3].

Dietary habits frequently become worse during college years and young adulthood. Determinants of dietary habits are factors that modify the behavior of the risk group, which are grouped into two main categories[4].

Firstly, the individual determinants which are factors that reside within the risk individual and

are subject to their direct control, they usually include cognitive factors and capabilities. Secondly, the external environment determinants which are out of control of individuals [5].

The food environment aspect incorporates all opportunities to procure food within a given region, it is the place where food is purchased and consumed. The rapidly increasing fast food outlets has created an alarming situation to practice unhealthy dietary habits [6].

The food environment can be divided into "community food environment" which include (type of available and accessible food courts) and "consumer food environment" which include (prices, promotions and offered nutritional information about available food and beverage products)[7].

There is growing interest in understanding and assessing the role of the food environment in promoting or hindering dietary habits. It has been suggested that dietary habits change is more likely to be facilitated and sustained if the environment within which choices are made supports healthful food options[8]. Reducing obesity and diet-related chronic diseases is not likely to occur until environmental influences are identified and modified [9]. Therefore, the main objective of this study was to assess the food environment within the university campus.

MATERIAL AND METHODS:

Research design

A cross sectional design was used in this study.

Setting

This study was carried out at Mansoura University from March to June 2014.

Subjects and sampling

All managers of food courts inside the university campus (seventeen courts).

Study tools

Data were collected by using two tools that were developed by the researcher as following:

Tool I: A structured questionnaire sheet of physical characteristics of food courts including (Name and type of food courts, working period , presented menu ,available food and beverage and their price strategy).

Tool II : observational checklist of measures used to promote offered food and beverage including (Criteria of menu and signage displayed, placement of products, and any accompanied nutrition information about nutrient, health claim and caloric content of offered food and beverage within these food courts.

Methods

- An official permission was obtained from the administrative sector of Mansoura University
- Ethical approval on the study was obtained from the research ethics committee of the faculty of nursing, Mansoura University.

- Verbal informed consent was obtained from food courts' owners. The purpose of the study was clarified and confidentiality of the data was ensured.
 - Data generated was analyzed using Statistical Package for Social Sciences (SPSS version 20). Statistical techniques employed include descriptive statistics.
- juices ,tea , coffee with skimmed or low fat milk. Regarding snacks and chips available, results reflected that all of them serve full fat and fried foods ,while none of them serve cracked bread, skimmed or low fat yogurt, cheese , sauce and special diet for hypertensive or diabetic patients . In relation to prices of food and beverage, the results showed that none of them offer discount or subsidies on presented healthy items or increase prices of unhealthy items.

Results

Table (1) illustrated that all food courts are fast food restaurants. Regarding food court's managers working period , more than half (58.8%) of them work 11 hours or more during semester activities while only (17.6%) of them work 8-10 hours during semester vacation. Also, the majority (94,1%) of them presented signage and printed menu type.

Table (2) showed that all food court's managers serve fresh salad , while none of them serve fresh , canned, dried, or frozen fruits. Concerning beverage available, it was found that all of them serve soft drinks , while only (11.8%) serve fresh fruits

Table (3) presented that the majority (88.2% and 94.1%) of food court's managers display signage and serve menu that show unhealthy options of food and beverage respectively. However only (5.9% and 11.8%) of them display signage and serve menu that encourage healthy eating . It was observed that only (5.9%) place healthy foods and beverages options where it is easily accessible to students. In addition, it was noted that all of them didn't put colored code or serve information about calories, nutrient content ,health claims , fat, salt and sugar level in offered food and beverage.

Table (1): Distribution of food courts according to their physical characteristics.

| Physical characteristics | N=(17) | % |
|---|---------------|----------|
| Food court type* | | |
| Grocery shops | 16 | 94.1 |
| Cafe | 2 | 11.8 |
| Fast-food | 17 | 100 |
| Menu type | | |
| Signage and printed menu | 16 | 94.1 |
| Working period* | | |
| During semester days only | 17 | 100 |
| During semester days and vacation | 5 | 29.4 |
| Working hours during semester days | | |
| 8 -10hours | 7 | 41.2 |
| 11hours and more | 10 | 58.8 |
| Working hours during vacation's days | | |
| 8 -10 hours | 3 | 17.6 |
| 11 hours and more | 2 | 11.8 |

* More than one answers given.

Table (2): Distribution of food courts according to available food & beverage.

| Available food & beverage | N=(17) | % |
|--|---------------|----------|
| Vegetables | | |
| Fresh salad | 17 | 100 |
| Beverage available* | | |
| Fresh fruits juice , tea and coffee with skimmed or low fat milk | 2 | 11.8 |
| Whole fat milk and Bottled water | 16 | 94.1 |
| Diet soft drink and sweeten packed juice | 15 | 88.2 |
| Sweeten energy beverage | 4 | 23.5 |
| Soft drinks | 17 | 100 |
| Snacks and chips available* | | |
| Full fat cheese and fried foods | 17 | 100 |
| Sandwiches without high fat food additives | 1 | 5.9 |
| Baked and boiled foods | 3 | 17.6 |
| Grilled foods | 12 | 70.6 |
| Low sugar foods | 8 | 47.1 |

* More than one answers given.

Table (3): Distribution of food courts according to promotion measures of available food & beverage.

| Promotion | N=(17) | % |
|--|--------|------|
| Signage present at food courts* | | |
| Signage show healthy option of food and beverage | 7 | 41.2 |
| Signage show unhealthy option of food and beverage | 15 | 88.2 |
| Signage encourage healthy eating | 1 | 5.9 |
| Signage encourage intake large portion size | 7 | 41.2 |
| Placement and promotion of healthy food and beverage option | | |
| Placement of healthy food and beverages is easily accessible | 1 | 5.9 |
| Menu * | | |
| Menu shows small/medium portion size | 13 | 76.5 |
| Menu show baked food | 2 | 11.8 |
| Menu show fried food | 16 | 94.1 |
| Menu show grilled food | 7 | 41.2 |
| Menu show low fat nutritious food desert | 9 | 52.9 |

* More than one answers given.

Discussion:

The findings of the present study offer insight into environmental factors of food courts setting throughout the university campus that could affect individual dietary habits. Based on the current findings of food courts physical characteristics, it was revealed that all of them were fast food restaurants. These results come in agreement with similar studies which concluded that fast food restaurant is growing rapidly on a national and international level and is part of shifting eating patterns that has been noted by public health professionals [10,11,12]

A variety of food and beverage options were available at food courts for students with no substantive differences in healthful choices among them. Concerning vegetables, fruits, snacks and chips available at food courts, the present study showed that all food court's managers serve fresh salad, high fat and fried foods while

none of them serve fresh, canned, dried or frozen fruits, cracked bread, skimmed, low fat foods, special diet for hypertensive or diabetic patients. On the other hand, concerning beverage available, it was found that all of them serve soft drinks and few of them serve fresh fruits juices, tea and coffee with skimmed or low fat milk. These results come in agreement with similar studies that provide detailed description of the food environment, and found that most of them offered high-fat and sugar cookies as cakes, chips, crackers, candy, snack, ice cream, frozen desserts, pizza, burgers, sandwiches, French fries in addition to calorie-dense beverages such as soft drinks. Those studies, Concluded that these foods are acceptable and available at any time and displacing fruits and vegetables in the students diets which may contribute to the habituation of unhealthy dietary behavior. [13,14,15,16,17,18].

With regard to price of foods and beverages presented at food courts , the present study showed that there was no any form of discount, offers, subsidies on presented healthy item and there was no any form of increased price of the unhealthy items which served at all food courts inside the university campus. these finding are consistent with similar studies that measure the healthfulness of food environment and found that the higher cost were related to the healthier items without offering any form of discount or subsidy on them and the cheapest cost was for unhealthy items.[19,20,21,22].In light of these findings, several studies have noticed that customers, especially those in low-income, tend to purchase and consume foods that are priced more affordably, and calling for the need to make healthier food items more affordable at fast food restaurants. [23,24]

Generally, food court's managers lacked several basic practices to encourage more healthful dietary habits . Concerning signage's displayed , the present study showed that most of them display one that offer less healthful options and encourage unhealthy eating or overeating. As regards to the served menu, it was found that the majority of them serve menu that showed unhealthy items. These findings come in agreement with similar studies on promotional strategies used in fast food chains, they indicated that 80% of restaurants had promotions posted on the exterior of the building. Further, the products being promoted were

found to be low in nutritional value, high in calories, sodium, saturated fat, and sugar and not aligned with current nutrition dietary recommendations for healthy adults which advocating for increased consumption of nutrient poor and calorie dense foods[24,25,26,27,28,29].

Regarding food and beverage placement, It was observed that only one food court's managers place healthy foods and beverages options where it is easily observable and accessible to students. These results come in agreement with similar two studies that assessed and identified the importance of the amount of shelf space devoted to fresh product and snacks and its influence on sales, it was found that, although some space devoted to fresh products, the greatest amount of space also devoted to unhealthy snack items, and reported that if the amount of shelf space for a particular item was doubled, sales of that item increased by about 40% [30, 31].

Concerning availability of nutrition information about calories , health claims, nutrient content of fat, salt and sugar level in offered food and beverage either through signage ,menu board or printed menu, it was demonstrated that comprehensive nutrition information, was not available in all food courts inside the university campus . These results come in agreement with similar studies [32,33,34] that assessed the availability of point of- purchase nutrition information at fast-food restaurant, it was found that nutrition

information at the point of decision-making is often difficult to find or completely absent.

Our findings are essential for caterers at the university campus to reevaluate their suppliers and food availability, so more health food products can be accessible. It was recommended to develop a strategy to create a healthier food environment that encourage eating a more optimal diet and move the profile of the whole population in a healthier direction.

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