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Nutrition's Students Awareness of Breakfast

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Abstract
Breakfast is known as a healthy meal of the day. The objective of this research is to examine the awareness of nutrition students for breakfast. Cross sectional study was used to include different studying years. Questionnaire was used as a tool for data collection. The results of this research indicated the low awareness of students of breakfast meal and its components. The family plans dominated the preparation and existence of breakfast. The available popular food was dominated as breakfast components. Nutrition awareness courses should be introduced to change students' lifestyle.
Keywords: Breakfast, nutrition students, breakfast components, customs

Introduction

Breakfast is known widely as being a core meal for well-being health. Health behavior is affected by breakfast especially for adults and adolescents (Keski-Rahkonen, 2003). Breakfast is believed to provide healthy food away of fats with better quality (Matthys, et al., 2007).

The effect of breakfast on students' behavior was contradicting. Cognition, physical activity, and academic performance were found to be improved with breakfast intake (Pollitt, 1995; Pollitt, 1998). Florence et al. (2008) found that schools' students perform better with good food quality. Other authors indicated that the performance of students in science improved as the nutrition quality improved (Li et al., 2012; Belot and James, 2009) Some authors have shown that the connection between breakfast and physical activity in adult stage is not clear (Aranceta et al., 2001, Corder et al., 2011).

Dropping the breakfast will increase the opportunity for overweight leading body mass index to increase resulting of higher intake of fat meals through the day (Resnicow, 1991). Other studies associated BMI to food components. Different authors have shown that weight and BMI is associated with calcium intake (Nielsen and Popkin, 2003; Zemel et al., 2004). Calcium and fat intake is affected by breakfast which is in most cases rich in calcium and poor in fats. Knowledge of weight and BMI is considered crucial to change food pattern to conserve normal conditions. Rinaldo et al. (2014) reported that despite the importance of knowing your weight and BMI, still wide variety of adults do not seek to know them or either to recognize how to connect them together to improve their healthy conditions.

The knowledge of nutrition is not necessarily associated with dietary behavior (Karinth et al., 2009). Diet behavior is associated to different considerations. Changing dietary behavior is strongly associated with self-tendency to improve health and maintain healthy body (Crites and Aikman, 2005). Increasing awareness and nutrition knowledge may produce positive effect on some groups but not necessarily accomplish improvement in all students with nutrition knowledge (Wardle et al., 2000).

Crucial constraint contributes to dietary behavior is the demographic characteristics more than the knowledge of nutrition (Wardle et al., 2000). The social habits and structure will play a major constraint in determining the type of food intake. Moreover, the economic factor plays a role in food intake patterns. Popular food habits for breakfast play a role in determining the type of food intake. In such circumstances, the food pattern intake will depend on the time of day and popular food available mostly.

Middle East countries and North Africa (MENA) has its own diet habits. The most dominant food in this region is relied on dairy products, sugars, fast food and cereals specially in breakfast (Pryer et al. 2001). In these regions the dietary pattern is associated with social structure more than the nutrition knowledge (Musaiger, 2012).

Methods

The objective of this research is to test the breakfast nutritive awareness of nutrition students for breakfast in Faculty of Nutrition in Al Balqa Applied University. Cross sectional study was conducted to compare nutrition students' awareness for breakfast from different years in Faculty of Nutrition in Al Balqa Applied University. The population of this research is composed of 295 nutrition students registered at the faculty. The first year students forms 29.8% of the population, while the second year students form 28.5%, third year students form 16.3% and the fourth year students form 25.4%. Random sample of 165 subjects was selected using random sample calculation equation (Sekaran, 2010). Total random sample was divided on the fourth year levels of students in Faculty of Nutrition. About 49 subjects were selected from the first year students, while 47 subjects were selected randomly from the second year students, 27 subjects were selected from the third year students and

42 subjects were selected from the fourth year students. The sample included fourth year levels as the courses of the first year lacks nutrition ones, in the second year students start to learn specialty courses with restricted number, while in the third year and fourth year most of courses given for the students are from the specialty courses.

Questionnaire was used as a tool for data collection. The questionnaire was distributed on 165 subjects and 145 questionnaires were collected with response rate 87.9%. The questionnaire was composed of demographic characteristics. The demographic characteristics included gender, education year, marital status, number of family members, and fathers' and mothers' education. Students' food habits data was collected in the second part of the questionnaire. This part included questions about breakfast preparation at home, students' knowledge about his weight and height, and smoking. The third part of the questionnaire was concerned of collecting data about breakfast timing and the first food behavior of students starting his day. The third part was asking about the some side effects that face students through his day including getting flue, headache through the day and lack of cognition. The last part of questionnaire concerned with collected information about the frequency of intake of wide variety of breakfast food. The extent of items used in breakfast was measured using Likert scale (Usually, most of times, sometimes, and never).

Random trial sample of 30 subjects were taken to test the validity of the questionnaire. Data were entered on SPSS ver. 21. Reliability was calculated to be 0.771 which is acceptable for such research (Hair et al., 2006). Descriptive statistics was used to describe subjects' demographic characteristics as well as the characteristics of breakfast intake and habits for students. Inferential statistics was used to measure the effect of breakfast habits and demographic characteristics on the type of food intake in the breakfast meal. Chi square test was used to test the significance distribution of discrete variables.

Breakfast items were classified into groups (Garduno, 2015). The groups included in the classification are: vegetables, fruits, breads and cereals, milk and dairy products, meat and alternatives, healthy fats and oil, others, condiments and free foods.

Results

Demographic characteristics. Nutrition is a feminine specialty in Jordanian universities this justifies the high percentage of females in the studied sample (77.8%). The retrieved sample composed of 29.6% of first year students, 28.7% of second year students, 16.7% of third year students and 25.5% of fourth year students. The percentage of families with more than 7 members reached 33.3%, while the percentage of families with members less than five reached only 11.1% (Figure 1). The families with 5-7 members reached half of the sample, even though these families are considered large ones compared to the increased demand for life needs and the bad economic conditions.

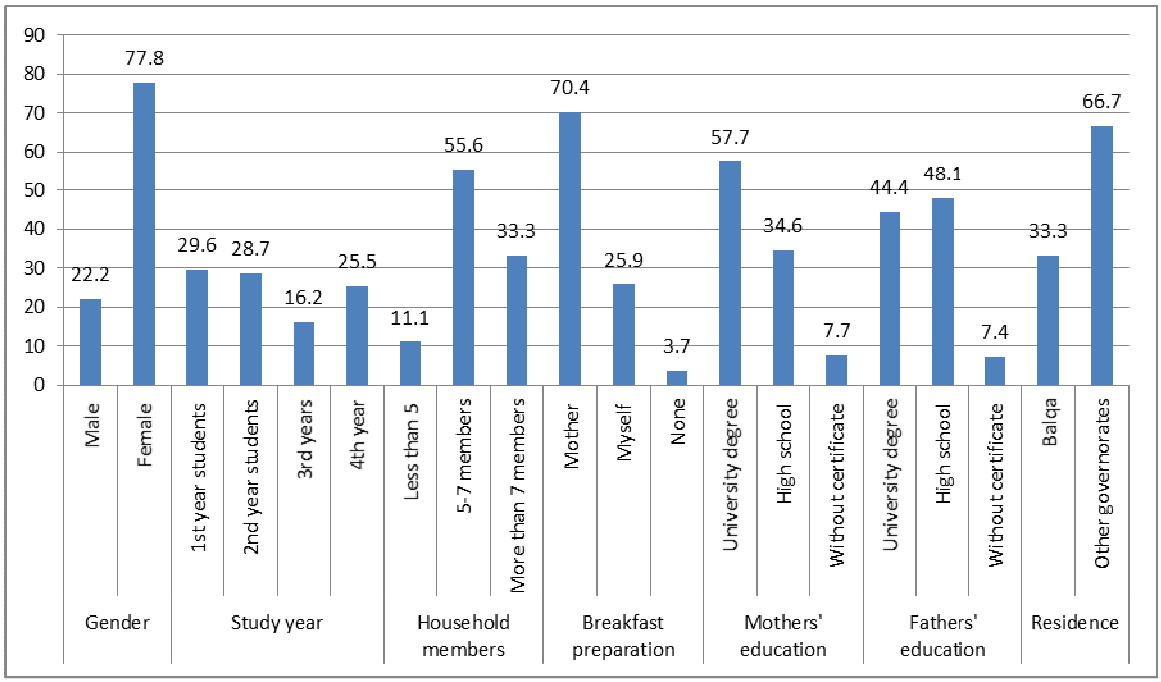

Figure 1: Demographic characteristics of nutrition students

Breakfast preparation is dependent mainly on families' mothers with percentage 70.4%, On the other hand, still there is a good percentage of nutrition students who relies on themselves in preparing their breakfast (25.9%). Mothers with university degree representing 57.7% of the sample which was higher compared to

fathers (44.4%).

Weight and BMI Knowledge. The majority of nutrition students reported their knowledge of their weight (96.3%) (Figure 2). Despite the high percentage of nutrition students recognition for weight still there is 3.7% of them do not know their weights, indicating that these category of students do not care to follow up their health status. The BMI showed that high percentage of students is healthy weighted (76.9%), while 15.4% of subjects are underweight and 7.7% are overweight.

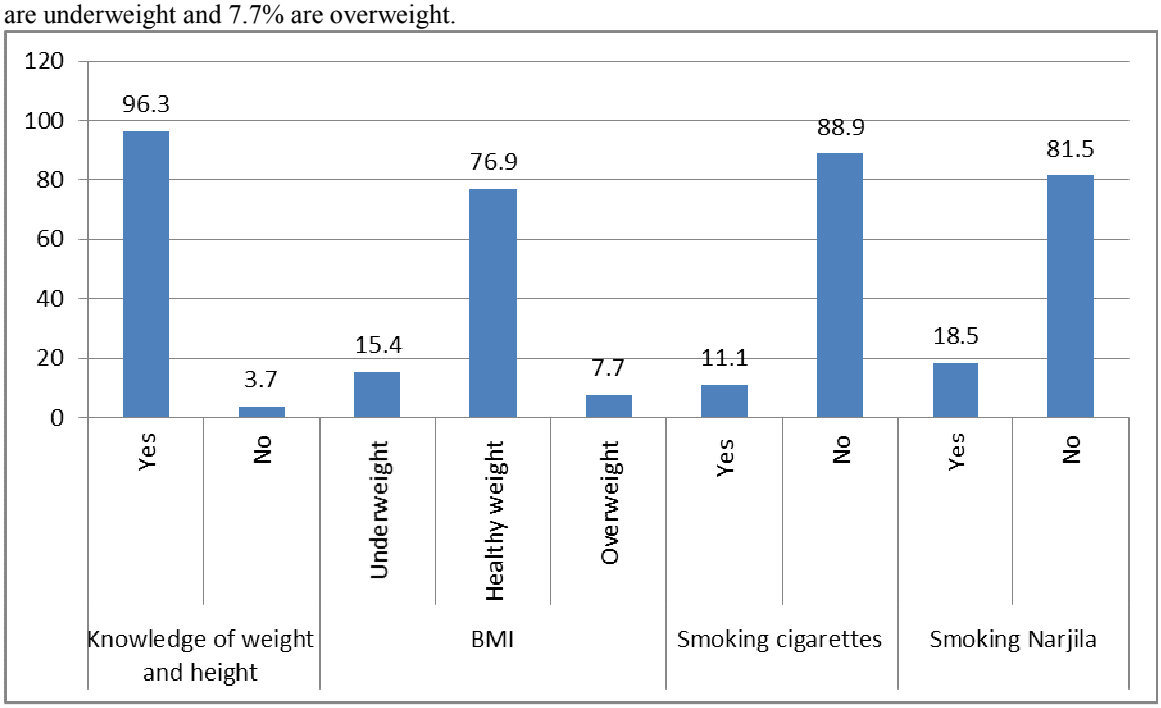

Figure 2: Weight knowledge and smoking among nutrition students

The majority of sample as mentioned before are females. This contributed to low percentage of smokers among the sample (11.1%). Also, the recorded percentage for Narjila smokers reached 18.5%. The existence of these two smoking categories will make possible to compare the different concerns with breakfast components (Figure 2).

Half of the sample indicated that they have breakfast daily (51.9%). About 22.2% of the sample has shown that they do not have breakfast daily, while 22.2% of the sample sometimes has their breakfast (Figure 3). These results indicated the awareness of breakfast is very good among the sample. On the other hand, considerable percentage of the sample needs more education of the importance of breakfast and its importance in starting the day. The majority of sample (40.7%) indicated that they have their breakfast inside home. The rest of the sample indicated that they have their breakfast outside. Concerning the time of breakfast, varied results were recorded. About 34.6% of the sample indicated that they have their breakfast from 7 to 8 am, while the same percentage indicated that they have theirs after 9 am. The rest of sample takes their breakfast outside these times. These results reflect the low awareness of the importance of the time of breakfast. The majority of nutrition students start their day with drinking water (60.0%). Also, 11.1% of the sample starts their day with cup of milk, while on the other hand, 22.2% of the sample start their days with soft or caffeine drinks. These results reflect the low awareness of nutrition students for the good habits to start their day.

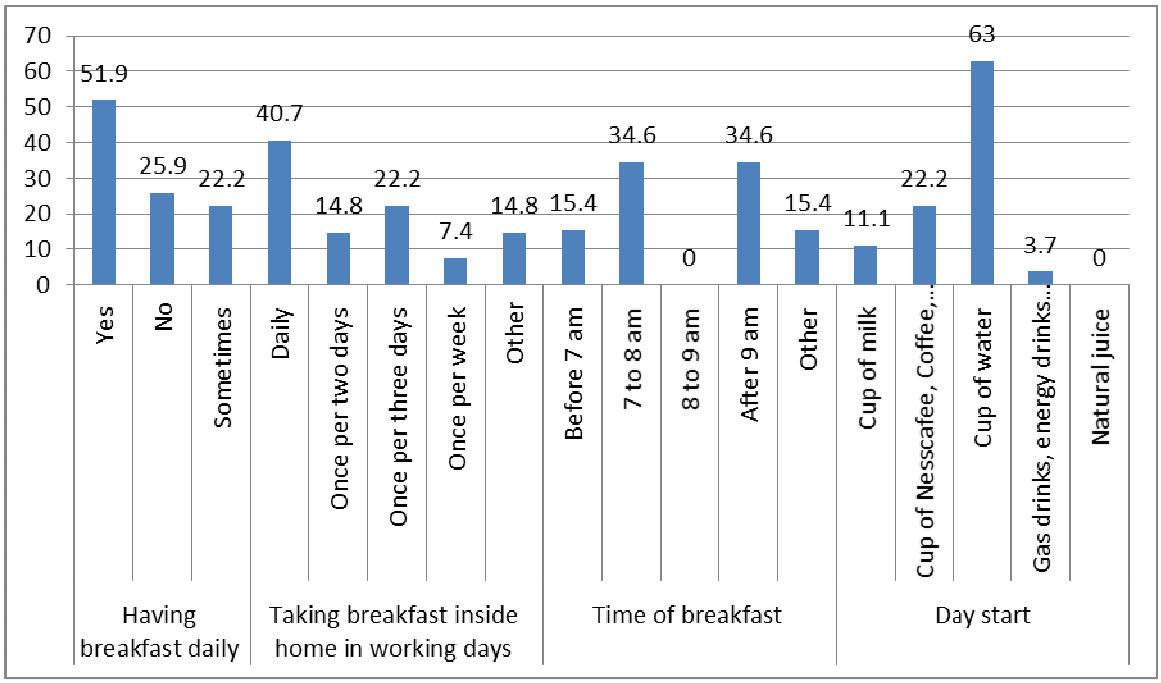

Figure 3: Breakfast habits among nutrition students

The fist consumption group was the healthy fat group with mean 3.19. The healthy fat is represented in olive oil which widely used in Jordan in different meals and foods as it is also available for most families in Jordan (Figure 4). The second groups were the other which represented in cake, biscuits, and fries which is considered fast food. The third group was meat and alternatives with mean 2.79. The alternatives of meat was dominant in this group represented in legumes and its products which is considered cultural food and available for public. The fourth groups was for vegetables which is considered widely consumed in Jordan and it is easy to be provided in the family followed by milk, yoghurt and their products with mean 2.73. This group is available through the nature of the area which is characterized by production of animal products. The least available group was for condiments which represented in jam, honey, and butter. The free foods group got a mean 2.58 which is high and represented in coffee, tea and soft drinks. These results indicated unhealthy food habits among nutrition students.

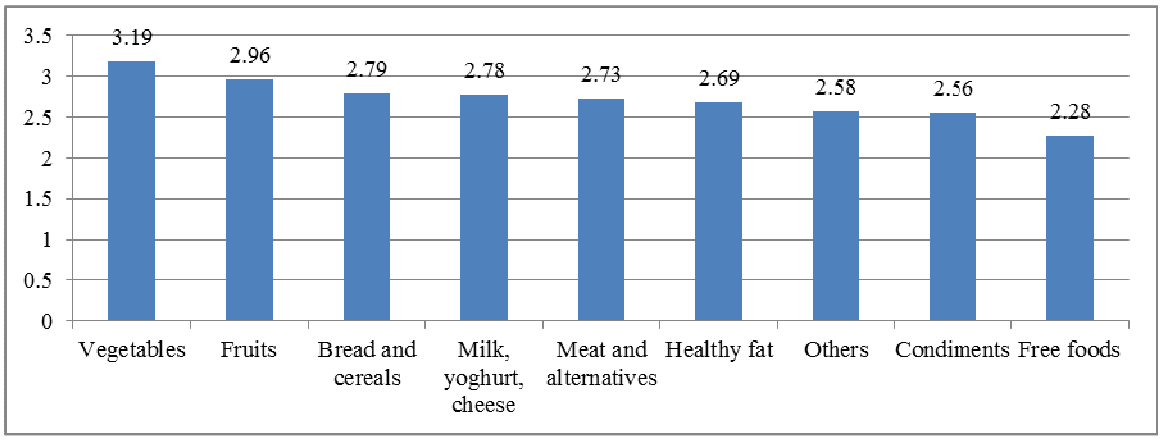

Figure 4: The food groups' intake of the breakfast according to their importance

The effect of demographic and breakfast habits on breakfast items varied. The effect of sex was significant (p=0.003) for free foods. The results showed the mean for frequency of using free foods was 3.22 for males compared to 2.37 for females (Table 1). The significant difference resulted of higher make students' intake of coffee and tea. The behavior of sex for other groups was similar. Smoking created significant difference for free foods (p=0.028) (Table 1). Smoker intake of free food was higher (3.33) compared to non-smokers (2.46). The smokers concentrated on coffee and tea uptake in the morning times.

The behavior of nutrition students for breakfast components was similar for students in all studying years (Table 1). The highest concentration was on vegetable food for all studying years. The concentration of others as part of breakfast which represented in intake of family available food like cheese and butter which is available in rural houses (Table 1). The number of family members did not affect the food pattern in breakfast.

The highest concentration in large families is on available stored food such as olives, olive oil and vegetables. The condiment food was more significantly distributed among students outside Balqa governorate. The most frequent condiment food is concentrated on the use of jams.

Mothers' preparation of breakfast increased the use of butter, jam and honey which is available widely for house use. Moreover, mothers' and fathers' education was reflected on breakfast components (Table 2). Daily intake breakfast was concentrating on condiments ($p<0.05$). The condiments were concentrating on home fast preparation food such as jam, butter and honey. Also, the use of vegetables was higher among the students taking breakfast daily (3.12) compared to other students. The students who do not have breakfast daily was concentrating on chocolate, cakes and biscuits. This appears also for the students who take their breakfast before 7 am. This category concentrates on milk, yoghurt, cheese, legumes and bread (Table 3).

Discussion

The paper aimed at figuring out the students' awareness of breakfast meal. The population of the study was the nutrition students at Al Balqa University. Cross sectional study was conducted to involve four year students. The distribution of questionnaire for the four studying years will provide opportunity to compare the increase of awareness among students at the faculty. The distribution of households' members represented the social structure of the Jordanian family which is characterized by large number of members. The university is located in a governorate that is dominated with rural social life which is characterized by large number of sons and extended families. The high number of sons in the family will affect the style of life and increase the economic overburden.

Rural eastern family life explains rely mainly on mothers in breakfast preparation. This explains the traditional marriage which is depends on family agreement more life plans before marriage. Moreover, the rural life lacks the high concern with education. This justifies the considerable percentage of mother and fathers with high school diploma degree and without any high level certificate. Students' resident area will increase the opportunity to measure the awareness according to living area. The residence area was divided to Balqa governorate which represents a rural area and students outside the governorate to compare the differences the effect of life style on awareness for breakfast.

The impression given through the students' knowledge of weight and BMI is that even though the students know their weights or heights, they did not care for BMI as indication of health. Similar results reported by Alicia et al. 2000, who indicated that the low awareness of students' dietary behavior put them at risk. The nutritive knowledge and the students nutrition knowledge was not reflected on their or their families' life style. Majors and Kentucky (2015) have shown that the students' knowledge is restricted to other factors part of them related to family. Families' mothers are the determinant of the breakfast components almost. The area customs and number of family members concerning economic conditions were the major determinants of the styles of mothers' thinking of breakfast. Large number of families plays a crucial role in determining the components of breakfast which concentrates on foot habits that concentrates on legumes, tea, cheese, butter, olives and olive oil which widely available for families' use.

Smoking among nutrition students affected the style of breakfast among students. Smoking students concentrate on caffeine drinks in the morning more than healthy breakfast meals. Also, the time of breakfast intake plays a role in determining the students' behavior. The later the breakfast, the more move of the traditional food used among families but also away of healthy breakfast meals. In general, the results reflected the lack of knowledge among the nutrition students for breakfast meal and also their impact on their families' behavior. Nutrition general courses are recommended to improve the students' awareness of breakfast value and to change lifestyle.

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Table 1: The effect of students' demographic characteristics on breakfast components

	Gender		Studying year				Smoking		No. of family members			Residence	
	Male	Female	1st	2nd	3rd	4th	Smoker	Nom_smoker	Less than 5	5-7	more than 7	Balqa	Outside
Vegetables	2.93±0.28	2.73±0.14	2.73 ± 0.68	2.95 ± 0.64	2.85 ± 0.82	2.57 ± 0.51	3.00±0.40	2.75±0.13	3.20±0.50	2.71±0.16	2.75±0.21	2.49±0.19	2.93±0.15
Fruits	2.83±0.28	2.50±0.16	2.44 ± 0.68	2.63 ± 0.58	2.63 ± 1.38	2.67 ± 0.52	3.17±0.17	2.50±0.15	2.33±0.60	2.57±0.19	2.69±0.21	2.44±0.29	2.65±0.15
Bread and cereals	2.67±0.25	2.69±0.08	2.5 ± 0.38	2.81 ± 0.37	2.63 ± 0.63	2.79 ± 0.39	2.33±0.33	2.73±0.08	2.83±0.17	2.70±0.08	2.61±0.20	2.39±0.07	2.83±0.1**
Milk, yoghurt, cheese	2.67±0.18	2.75±0.15	2.63 ± 0.4	2.88 ± 0.65	2.5 ± 1.14	2.82 ± 0.47	2.33±0.17	2.78±0.13	3.08±0.51	2.68±0.17	2.69±0.17	2.56±0.20	2.82±0.15
Meat and alternatives	3.13±0.18	2.69±0.12	2.85 ± 0.59	2.75 ± 0.27	2.83 ± 0.89	2.70 ± 0.43	2.94±0.24	2.77±0.12	2.83±0.17	2.91±0.15	2.55±0.22	2.85±0.23	2.75±0.11
Healthy fat	3.33±0.42	3.14±0.19	3.00 ± 0.93	3.38 ± 0.74	4.00 ± 0.00	2.71 ± 0.95	3.33±0.67	3.17±0.18	3.33±0.33	3.27±0.23	3.00±0.33	3.11±0.35	3.22±0.19
Others	2.72±0.20	3.03±0.11	3.04 ± 0.63	2.92 ± 0.56	3.17 ± 0.33	2.81 ± 0.5	2.78±0.29	2.99±0.11	3.33±0.33	2.96±0.11	2.85±0.22	2.81±0.20	3.04±0.11
Condiments	2.39±0.29	2.25±0.17	2.21 ± 0.5	2.46 ± 0.67	2.42 ± 1.13	2.06 ± 0.88	2.44±0.29	2.26±0.16	2.56±0.22	2.31±0.21	2.13±0.25	1.89±0.22	2.49±0.17**
Free foods	3.22±0.14**	2.37±0.13	2.75 ± 0.56	2.33 ± 0.87	2.5 ± 0.43	2.67 ± 0.63	3.33±0.19**	2.46±0.13	2.78±0.44	2.33±0.17	2.92±0.18	2.50±0.30	2.59±0.14

Table 2: The effect of families' characteristics on breakfast components

	Mother preparation of breakfast		Mothers' Education			Fathers' education		
	Yes	No	Without Certificate	High school diploma	University Degree	Without Certificate	High school diploma	University Degree
Vegetables	2.89±0.16	2.53±0.18	2.87±0.17	2.76±0.23	2.50±0.10	2.76±0.21	2.83±0.17	2.50±0.10
Fruits	2.64±0.18	2.44±0.20	2.57±0.17	2.67±0.30	2.50±0.50	2.64±0.25	2.65±0.16	1.75±0.25
Bread and cereals	2.74±0.10	2.56±0.11	2.80±0.12	2.56±0.10	2.50±0.50	2.79±0.14	2.65±0.09	2.25±0.25
Milk, yoghurt, cheese	2.75±0.16	2.69±0.13	2.80±0.12	2.69±0.28	2.75±0.25	2.50±0.21	2.96±0.13	2.63±0.13
Meat and alternatives	2.89±0.12	2.60±0.21	2.85±0.14	2.79±0.18	2.50±0.83	2.98±0.13	2.62±0.14	2.58±0.92
Healthy fat	3.21±0.20	3.13±0.35	3.13±0.24	3.44±0.24	3.00±1.00	3.00±0.28	3.23±0.23	4.00±0.00
Others	3.11±0.11*	2.63±0.18	2.87±0.15	3.04±0.16	3.17±0.17	2.94±0.12	3.03±0.17	2.67±0.33
Condiments	2.47±0.16*	1.76±0.19	2.12±0.18	2.67±0.25	2.17±0.17	2.09±0.21	2.54±0.20	1.67±0.33
Free foods	2.72±0.14*	2.14±0.23	2.40±0.17	2.74±0.24	2.83±0.50	2.69±0.2	2.44±0.20	2.50±0.17

Table 3: The effect of breakfast frequency and time on components

	Breakfast					Time of breakfast			
	Daily	Once per two days	Once per three day	Once per week	Other	Before 7am	7-8am	8-9 am	After 9 am
Vegetables	3.12±0.18	2.55±0.31	2.47±0.22	3.10±0.50	2.45±0.34	2.8±0.5	2.78±0.23	2.76±0.22	2.90±0.31
Fruits	2.80±0.24	2.75±0.25	2.42±0.24	2.75±0.75	2.00±0.41	2±0.5	2.61±0.18	2.83±0.28	2.50±0.35
Bread and cereals	2.82±0.15	2.25±0.14	2.83±0.11	2.50±0.00	2.63±0.13	3.13±0.24	2.61±0.11	2.67±0.17	2.50±0.00
Milk, yoghurt, cheese	2.93±0.15	2.5±0.18	2.96±0.28	2.75±0.00	2.06±0.39	3.31±0.26	2.72±0.15	2.53±0.27	2.63±0.22
Meat and alternatives	2.91±0.14	2.38±0.35	2.79±0.21	2.50±0.33	3.08±0.31	3.08±0.42	2.57±0.18	2.95±0.20	2.71±0.21
Healthy fat	3.45±0.25	3.00±0.58	2.83±0.31	3.50±0.50	3.00±0.58	3.25±0.48	3.11±0.31	3.33±0.29	3.25±0.48
Others	2.94±0.17	2.67±0.30	2.89±0.14	3.83±0.17	3.00±0.14	2.58±0.16	3.00±0.18	2.78±0.15	3.67±0.14**
Condiments	2.57±0.19*	1.75±0.16	2.50±0.33	2.67±0.67	1.58±0.28	2.42±0.46	2.25±0.12	2.30±0.32	2.33±0.43
Free foods	2.85±0.18	2.22±0.48	2.28±0.26	2.67±0.33	2.42±0.37	2.92±0.25	2.44±0.25	2.58±0.27	2.67±0.14