



Prevalence of Unhealthy Diet Patterns among Kuwaiti Women: Implications for Overweight and Obese

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Abstract:

The main objective of this study is to determine the prevalence of unhealthy eating patterns among a sample of overweight and obese Kuwaiti female adults. Data were collected by using a questionnaire posted online during 1 September to 31 December 2011. Data represents 944 women of ages from 18 to 59 years and BMI range of 15.1-70.8. The major unhealthy eating patterns prevalent in Kuwaiti women were meal skipper (49%), hearty portioner (47%), night nibbler (38%), steady snacker (36%), swing eater (32%), convenient dinner (29%) and fruitless feaster (27%). Hearty portion and night nibbler were found to be more prevalent in obese women. In conclusion, eating patterns such as skipping meals and eating large portions were more prevalent in obese women than their non-obese counterparts which may have contributed to their adiposity.

Introduction

Obesity is considered to be the fifth leading cause of mortality worldwide as well as a risk factor for many diseases such as diabetes mellitus type II, hypertension and coronary heart disease (Abdul Rahim et al. 2014; Munro et al. 2011). In Kuwait, studies showed increasing rates of overweight and obesity among Kuwaiti adults (Al-Isa et al. 2013). Physical inactivity and faulty dietary habits are often hypothesized to be the reasons behind this increase (Badr et al. 2012).

Seven eating behaviors or patterns have been identified as possible barriers to weight management including skipping meals (meal skipper), eating at night (nighttime nibbler), eating away from home

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(convenient diner), not eating enough fruits and vegetables (fruitless feaster), mindlessly snacking throughout the day (steady snacker), eating too much food too fast (hearty portioner) and switching from healthy to unhealthy diet too dramatically (swing eater) (Kushner et al., 2002). Identifying these eating behaviors may have important implications which may guide us towards improvements of their nutritional counseling in the future. Until now, there is no other published data in characterizing eating behaviors in Kuwait. Therefore, the objective of the present study is to determine the prevalence of eating behaviors among a sample of overweight and obese Kuwaiti female adults.

Materials/Subjects and Methods

An eating pattern questionnaire was adopted and modified from Kushner and Choi¹. Since September 1st 2011, the questionnaire had been posted online on social networking services (Twitter and Facebook). The questionnaire included 17 questions to appraise about the unhealthy eating patterns. A 4-point Likert scale ranging from “disagree” to “agree all of the time” was used to rate each question. Additional questions were asked to obtain information regarding age, gender, height, and weight etc of the participants. Each pattern was characterized by answers to 2-3 questions. The percent pattern score for each of the seven eating patterns is calculated by assigning a numerical value to the Likert scale responses; 0 = disagree, 1 = agree much of the time, 2 = agree most of the time, and 3 = agree all of the time. Therefore, % pattern score = participant's score/total possible score x 100. A pattern is considered positive only if it has a percent score of 66 or higher and then included in data analysis.

For this study, responses from 1117 participants were collected during the period from September 1st through December 31st of the year 2011. After excluding missing responses, we identified a subset of females (n = 944) aged between 18 and 59, and having a BMI (kg/m²) range of 15.1 to 70.8. The average age of the participants in this subset was 26 years with a standard deviation (s.d.) of 7.9. With the average BMI of 26.9 (s.d. = 7.3), participants were categorized as ≤ 18.5 (6.4%), 18.5-24.9 (39.8%), 25-29.9 (29.2%) and ≥ 30 (24.6%).

Data Analysis was performed using Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 19. Differences in p-values were tested by analysis of variance (ANOVA) with a 95% confidence interval.

Results

The present study demonstrates the prevalence of unhealthy eating patterns in a women population sample (n = 944) of Kuwait who responded to an internet-based survey (Table 1). Majority of the respondents were young women of 20 years of age which constituted about 61% of the sample. Obese women (BMI ≥ 30) constituted about 24.5% of the respondents while the overweight women (BMI 25-30) were about 29% (Figure 1). Overall prevalence of these dietary behavioral traits was found to be 49% for meal skipper, 47% for hearty portioner, 38% for night time nibbler, 36% for steady snacker, 32% for swing eater, 29% for convenient dinner, and 27% for fruitless feaster.

Figures and Tables

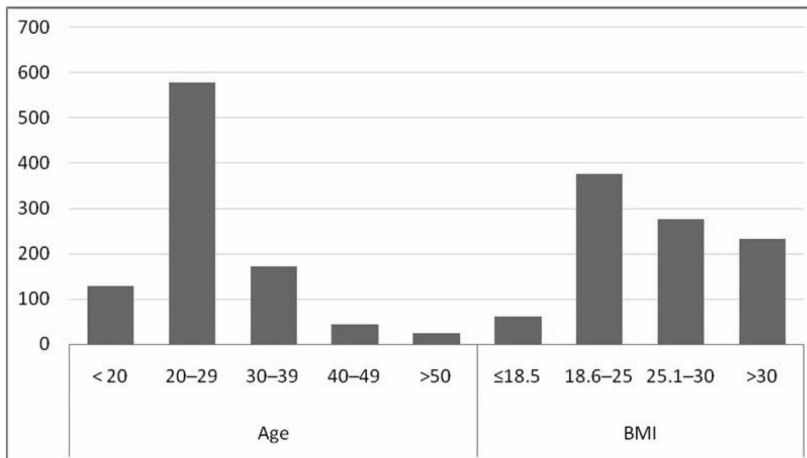


Figure 1 - Age- and BMI-wise distribution of the respondents

Table 1

Eating pattern questionnaire

1. If I “cheat” on my diet, I feel guilty afterward.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
2. If there’s food around me, I’ll probably eat it.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
3. I’m someone who regularly skips meals.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
4. Most meals are take-out or eaten in restaurants.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
5. Fruits and vegetables are my least favorite foods.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
6. I rarely eat fresh foods or home-cooked meals.
Not me at all.
This is true some of the time.
This is me most of the time.
That’s me!
7. Hungry or not, I snack on foods at home.
Not me at all.
This is true some of the time.

This is me most of the time.

That's me!

8. Given a choice, I seldom choose fruits and vegetables.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

9. Hungry or not, I snack on foods brought into the workplace.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

10. I eat a fast-food meal most days of the week.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

11. I eat little during the day and am most hungry at night.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

12. I have two eating styles: the "good" one I show in public and the "bad" one I use in private.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

13. I rarely take the time to plan my meals.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

14. I eat most of my food in the evening, at dinner and after.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

15. I never feel full until it's too late.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

16. I have difficulty controlling my portion sizes.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

17. Eating is always a battle between what I would like to eat and what I think I should eat.

Not me at all.

This is true some of the time.

This is me most of the time.

That's me!

The respondents endorsed 1.42 eating patterns on average of which meal skipper and hearty portioner were the most frequent (Table 2). Less than 20 years of age women on average endorsed 1.8 eating patterns and mostly acknowledged meal skipper and hearty portioner patterns. Young women of age group 20-29 also reported meal skipper and hearty portioner patterns mostly and endorsed on average 1.4 patterns. Noticeable pattern in the age group 30-39 group was hearty portioner and in this group on average 1.5 patterns were recognized. Among the respondents of age group 40-49, hearty portioner pattern was mostly endorsed and on average these respondents endorsed 1.7 patterns.

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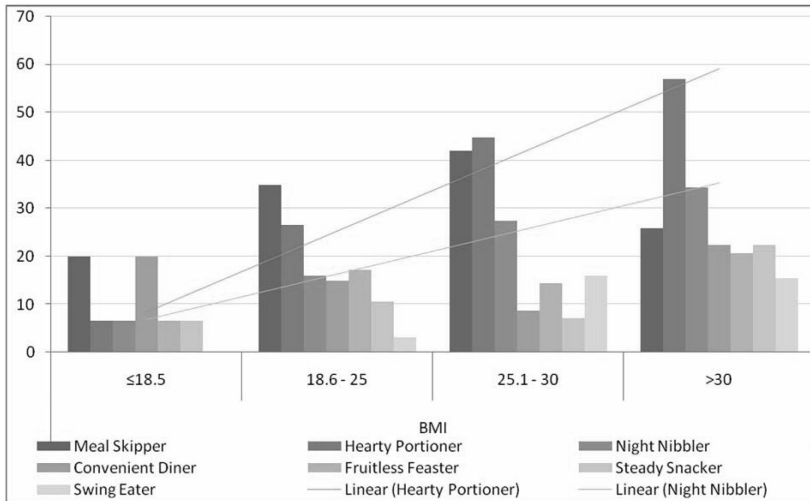


Figure 2 - A chart showing a general trend of the increased prevalence of unhealthy eating patterns with increasing BMI in the respondents. More peculiar are the hearty portioner and night nibbler for which trend lines are erected.

Table 2
Age- and BMI-wise categorization of response to eating patterns

		N	Meal Skipper	Night Nibbler	Convenient Diner	Fruitless Feaster	Steady Snacker	Hearty Portioner	Swing Eater	Average Eating Patterns*
Age	< 20	128	56 (43.7%)	36 (28.1%)	28 (21.8%)	16 (12.5%)	16 (12.5%)	60 (46.8%)	16 (12.5%)	1.8
	20 - 29	576	200 (34.7%)	136 (23.6%)	88 (15.2%)	88 (15.2%)	76 (13.2%)	184 (31.4%)	56 (9.7%)	1.4
	30 - 39	172	44 (25.5%)	36 (20.9%)	28 (16.2%)	44 (25.5%)	20 (11.6%)	72 (41.8%)	16 (9.3%)	1.5
	40 - 49	44	12 (27.3%)	12 (27.3%)	0	8 (18.2%)	4 (9.1%)	36 (81.8%)	4 (9.1%)	1.7
	> 50	24	8 (33.3%)	0	0	0	0	8 (33.3%)	0	0.7

*cont/ Table 2**Age- and BMI-wise categorization of response to eating patterns*

		N	Meal Skipper	Night Nibbler	Convenient Diner	Fruitless Feaster	Steady Snacker	Hearty Portioner	Swing Eater	Average Eating Patterns*
BMI	≤18.5	60	12 (20%)	4 (6.6%)	12 (20%)	4 (6.6%)	4 (6.6%)	4 (6.6%)	0	0.7
	18.6 - 25.0	376	132 (35%)	60 (15.9%)	56 (14.9%)	64 (17.2%)	40 (10.6%)	100 (26.6%)	12 (3.2%)	1.2
	25.1 - 30.0	276	116 (42%)	76 (27.5%)	24 (8.7%)	40 (14.5%)	20 (7.2%)	124 (44.9%)	44 (15.9%)	1.6
	> 30	232	60 (25.8%)	80 (34.4%)	52 (22.4%)	48 (20.6%)	52 (22.4%)	132 (56.9%)	36 (15.5%)	2.0

Among the respondents, 29.2% women were overweight (BMI 25-30) and 24.5% were obese (BMI over 30). Women with BMI 18-25, endorsed 1.2 eating patterns on average with meal skipper and hearty portioner the most prominent. Overweight women endorsed 1.6 patterns with meal skipper and hearty portioner, were the most usual. Obese women endorsed 2.0 eating patterns on average which was the highest figure in all categories. Among these obese women however, the most prevalent type of eating pattern was hearty portioner. Mean pattern scores according to age groups and BMI are given in Table 3.

*Table 3**Mean patterns' scores in various age and BMI categories*

Eating pattern	Age	N	Mean	SD	SE	P	BMI	N	Mean	SD	SE	P
Convenient Diner	< 20	128	0.350	0.270	0.024	0.000	≤18.5	60	0.253	0.330	0.043	0.000
	20 - 29	576	0.306	0.269	0.011		18.6-25	380	0.274	0.239	0.012	
	30 - 39	172	0.278	0.248	0.019		25.1-30	288	0.275	0.262	0.015	
	40 - 49	44	0.110	0.116	0.018		> 30	216	0.362	0.274	0.019	
	> 50	24	0.110	0.130	0.026		Total	944	0.293	0.263	0.009	

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cont/ Table 3
Mean patterns' scores in various age and BMI categories

Eating pattern	Age	N	Mean	SD	SE	P	BMI	N	Mean	SD	SE	P
	Total	944	0.293	0.263	0.009							
Fruitless Feaster	< 20	128	0.322	0.304	0.027	0.000	≤18.5	60	0.122	0.263	0.034	0.000
	20 - 29	576	0.243	0.299	0.012		18.6-25	380	0.279	0.312	0.016	
	30 - 39	172	0.334	0.331	0.025		25.1-30	288	0.241	0.294	0.017	
	40 - 49	44	0.303	0.303	0.046		> 30	216	0.321	0.313	0.021	
	> 50	24	0.000	0.000	0.000		Total	944	0.267	0.307	0.010	
	Total	944	0.267	0.307	0.010							
Steady Snacker	< 20	128	0.377	0.173	0.015	0.349	≤18.5	60	0.258	0.204	0.026	0.000
	20 - 29	576	0.355	0.229	0.010		18.6-25	380	0.318	0.215	0.011	
	30 - 39	172	0.381	0.210	0.016		25.1-30	288	0.357	0.185	0.011	
	40 - 49	44	0.333	0.175	0.026		> 30	216	0.480	0.206	0.014	
	> 50	24	0.407	0.128	0.026		Total	944	0.363	0.214	0.007	
	Total	944	0.363	0.214	0.007							
Hearty Portioner	< 20	128	0.548	0.294	0.026	0.000	≤18.5	60	0.234	0.220	0.028	0.000
	20 - 29	576	0.438	0.297	0.012		18.6-25	380	0.395	0.282	0.014	
	30 - 39	172	0.489	0.280	0.021		25.1-30	288	0.526	0.254	0.015	
	40 - 49	44	0.654	0.195	0.029		> 30	216	0.609	0.313	0.021	
	> 50	24	0.500	0.393	0.080		Total	944	0.474	0.297	0.010	
	Total	944	0.474	0.297	0.010							
Swing Eater	< 20	128	0.377	0.219	0.019	0.000	≤18.5	60	0.147	0.096	0.012	0.000
	20 - 29	576	0.305	0.215	0.009		18.6-25	380	0.262	0.187	0.010	
	30 - 39	172	0.345	0.211	0.016		25.1-30	288	0.380	0.217	0.013	
	40 - 49	44	0.373	0.170	0.026		> 30	216	0.405	0.215	0.015	
	> 50	24	0.220	0.130	0.026		Total	944	0.323	0.213	0.007	
	Total	944	0.323	0.213	0.007							

Discussion

Behavioral patterns recognition and assessment is a recently introduced aspect of planning weight management counseling sessions, which are considered as an effective strategy to overcome overweight and obesity problems. Keeping in view the potential of receiving feedback from general public in this regard, the present study stimulated Kuwaiti women through online survey to provoke response about their eating patterns. Instrument for response generation was based on an a priori conceptualization of behavioral patterns refined in the light of clinical practice (Kushner and Choi, 2010).

Our study indicates the prevalence of unhealthy eating patterns among women in Kuwait as reported by the respondents who endorsed 27-49% of the seven appraised patterns. Meal skipper and hearty portioner are among the most prevalent followed by night nibbler trait. Most of the respondents in this study were the young women and prevalence of overweight and obesity in the sample was about 53.7%. Thus, the prevalence of overweight and obesity and unhealthy eating patterns seems to be related and a clear trend of increased prevalence of eating patterns with increasing BMI can be seen in Figure 2. No such trend has been found in the age-wise categories of the data (Table 3).

Meal skipper has appeared as the most prevalent eating pattern in the present study. Previously, we have noticed breakfast avoidance as a prominent feature of adolescents which was positively associated with BMI and waist circumference (un-published data/in press). A number of previous studies have associated breakfast skipping with increased body weight (Al-Rethaiaa et al., 2010; Dupuy et al., 2011). Such a behavior has been reported to be associated with less physical activity, increased consumption of fatty food and also with poor education (Badr et al. 2012). In behavioral terms, it may be explained as reflex rebound effect i.e., prevention of a behavioral trait produces a more robust response later. A similar metabolic mechanism has been described by Chika et al. (2011) who suggest that breakfast skipping based prolonged fasting causes elevated insulin levels after meal which leads to more lipogenesis.

We have found night nibbler and hearty portioner eating patterns

as the most prevalent in the respondents with BMI over 30. However, not all obese individuals exhibit this behavior as has been found in a study comparing obese women diagnosed with night eating syndrome (NES) patients with those of non-NES obese women. Night time eating is a usual feature of patients diagnosed with NES which is curable with serotonin reuptake inhibitors like sertraline. This dietary complication is due to alteration in circadian rhythm leading to decreased daytime food intake and increased nocturnal feeding (O'Reardon et al., 2004).

In this study we found that many of the obese who exhibited night nibbler pattern also showed hearty portioner pattern (eating too much too fast). Such eating disorders are linked to psychopathology of which loss of control over eating and taking unambiguously large amount of food are common to obese persons that consequently lead to negative psychosocial sequel such as anxiety, depression and low self-esteem (Goldschmidt et al., 2007) which probably have compounding effects on psychopathology. Personality factors including neuroticism (worrisome, irritability, low self-esteem and anxiety) and conscientiousness (efficiency, organization, hard work) are reported to be associated with weight loss (Munro et al., 2011). However, such associations would need to be appraised in larger datasets to improve the conclusive evidence.

Though weight management counseling sessions have become an important part of anti-obesity programs, yet there is need to explore further possible avenues especially multidisciplinary approaches based on success stories (Nemet et al., 2005), community-based educational programs such as family therapy (Paul et al., 2010) and school programs such as health education sessions (James et al., 2004).

Conclusion

The study concludes that unhealthy eating patterns are well prevalent in the Kuwaiti women and prevalence of such behavioral traits significantly counts towards obesity which provokes the need for improvements in overweight management strategies by the healthcare providers as well as community educators.

Acknowledgment

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