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Research

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Perception of Body Weight Gain among First-Year Kuwait University Students

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ABSTRACT

This work was carried out to study the perception of 440 female and male first-year Kuwait University students on body weight gain. Students attended 11 colleges of the University, 6 of theoretical-type and 5 science-type colleges. Each college was represented by 40 students of both genders. Freshmen were chosen for this study to reduce the influence of their subsequent studying at different colleges to a minimum. A simple questionnaire that contained a section on demographics and 5 subsections, with 2 statements for each, was utilized in collecting responses from willing students. Correct responses were agreed upon by a panel of nutritionists and trained interviewers administered the questionnaire on a face-to-face basis. Obtained results were recorded and were statistically analyzed, with a set level of $p<0.05$ for statistical significance. Results showed varied percentages in the numbers of correct answers for 2-4 subsection (14-21%) and that only 5% of students answered all correctly. Demographic factors that significantly influenced responses were: college type on subsection 4($p<0.001$), governorate of residence on subsection 3($p<0.01$), and number of siblings on subsection 2($p<0.05$). Other demographic factors: age, gender nationality father education, mother education and monthly income did not influence responses. With concerns being raised in the literature about the nutrition and lifestyle of university students and, consequently their effect on body weight change, it is recommended that a short course on basics of healthy nutrition and lifestyle should be offered to freshmen across all study disciplines taught in universities. Educational interventions could prove valuable for their stage of study and for the rest of their lives.

KEYWORDS: Attitude; Health; Knowledge; Nutrition; Students; University.

ABBREVIATIONS: SPSS: Statistical Package for Social Studies; ANOVA: Analysis of variance; GCC: Gulf Cooperation Council; WHO: World Health Organization; BMI: Body Mass Index; YRBSS: Youth Risk Behavior Surveillance Survey.

INTRODUCTION

Normal body weight is one of the desired parameter for enjoying good health. It can be attained and maintained by following a healthy lifestyle that involves following sound nutrition and being engaged in a regular physical activity program. Excess body weight is mainly because of storage of fat and this heavier weight is a risk factor for some diseases such as diabetes, hypertension and other cardiovascular diseases – among many others. The status of body weight of an individual is a reflection of the overall effects of influencing factors, such as genetics, environment and nutritional status – among others that can be cultural.

University students constitute a segment of the population in any society. They are young and able to acquire knowledge. Promoting a healthy pattern for their nutrition and physical activity would be beneficial to them, their peers and members of their immediate family circle and those whom they may relate to and interact with. First-year university students are those who have just come out of high school with different scholarly interests – thus, they may choose to join either a theoretical-type or scientific-type colleges accordingly. Students in their

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first year at the university may still carry over their active life from their high school years; then as they progress in their studies and with mounting academic pressure, their lifestyle would be modified. Freshmen scored higher in health-promoting lifestyle profile than when they were in subsequent study years.[1] University students were found to be at risk of eating disorders and can be vulnerable to disturbance in their body weight and its perception.[2] About 15% of Spanish university students suffered from disturbed eating attitudes and 73% led an inactive lifestyle.[3] American freshmen gained between 1.5-3.0 kg of their body weight during the first semester in the university.[4] A meta-analysis of body weight change in first-year students in the United States showed that nearly 66% gained an average of 3.5 kg and 10% of them gained nearly 7 kg.[5]

With regard to university students in Kuwait, a study revealed an alarming finding, which is that nearly 93% of females and males were either overweight or obese.[6] A study that involved 1037 female and male first-year students at Kuwait University detected certain deficiencies in nutritional knowledge; however, 71% felt that their health was good, 66% stated that their nutrition as being healthy, 77% were satisfied with their body weight and 56% followed a certain diet to be satisfied about their weight.[7] The main perceived barriers to weight maintenance among university students in Kuwait were not having the skills to plan, shop for or time to prepare healthy food.[8] With such concerns about university students' attitude and potential changes in their body weight, it was of interest to explore the perception of students on some aspects of body weight gain. Without having freshmen to be influenced by the subject matters they have chosen to study, this work was limited to first-year students at Kuwait University.

MATERIALS AND METHODS

The University Setting

Kuwait University is the main national institution of higher learning in Kuwait, with a student body of nearly 36,000. Females account for nearly 2/3 of the total student population of the University. The University has several colleges, some are known as theoretical (such as the colleges of law, business administration, arts…etc.) and the others are those known as scientific (such as colleges of science, engineering and petroleum, life sciences…etc.). Being an urban university, colleges are located at different sites in the country.

The Questionnaire and Respondents

A simple questionnaire that contained a section on demographics and a section on perceived body weight gain was utilized. The section relating to weight gain consisted of 5 subsections, which were statements to be answered. Each subsection contained an aspect of body weight gain with two different statements, to which students were to check either of the statements, i.e., one answer only (Table 1). A panel of 5 nutritionists agreed on the correct statements of the questionnaire; thus, such were adopted and used for analysis of secured data. Responses were collected from a total of 440 first-year students from eleven colleges of Kuwait University, 40 from each college of the 6 theoretical colleges and the 5 science-oriented colleges. Theoretical-type colleges were those of: Arts, Business Administration, Education, Islamic Studies, Law, and Social Sciences. Science-oriented colleges were those of: Allied Health Sciences, Engineering and Petroleum, Life Sciences, Medicine, and Science. When students declared that they are in their first year of study at the University, they were asked to participate in this study at random. Students who agreed to respond to this survey offered their voluntary consent. Trained personnel were made familiar with the questionnaire first, then they recorded the student answers from those who were willing to participate.

Statistical Analysis

Data were recorded and analyzed using the IBM Statistical Package for Social Studies (SPSS) Editor, version 20 (International Business Machines Corporation, New York, USA) between February and April 2016. Descriptive analysis were expressed in terms of percentages. The analysis of variance (ANOVA) was utilized to detect the significance of any influencing factors (e.g.; age, gender, college of study…etc.) on student perception of body weight gain. The level of significance for these tests was set at $p<0.05$.

No.	Subsection statements	Choice answer*
1A	Overweight problem is due mainly to genetic and physiological factors	
1B	Overweight problem is due mainly to loss of self-control	Yes
2A	Overweight people can lose weight if they are determined	Yes
2B	Overweight people can lose weight if they have considerable external motivation	
3A	Weight reduction pills are effective in reducing body weight	
3B	Those who lost weight because of pills will re-gain their weigh with time	Yes
4A	Overweight people feel hungry because of their expectation of being hungry	
4B	Overweight people feel hungry because of stomach contraction and low blood sugar level	Yes
5A	Overweight problem is related to early childhood and is resistant to change	
5B	Overweight problem is related to poor dietary habits, which can be simply changed	Yes

*Agreed upon by a panel of 5 nutritionists.

Table 1: Items of the questionnaire on aspects of body weight gain.

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RESULTS

Respondents to the administered questionnaire were 285(65%) females and 155(35%) males, with an average age of 18.2±0.5 years. The total number of students was 440, of which 240 studied at theoretical colleges and 200 were from scientific colleges. Demographic data of this study population are presented in Table 2. The majority (85%) were Kuwaiti nationals, with the remainder being non-Kuwaitis. Students came from the different governorates of Kuwait. As for the educational level of their fathers, the majority (76%) had university education and higher, with lesser percentages of 16 with diplomas and 8 for up to high school level. In contrast to fathers, nearly 46% of the mothers had a university education or higher – with 31 and 23% who obtained diplomas and had up to high school education, respectively. The majority of students (75%) came from homes with a relatively high monthly income. Most of students had 0-7 siblings (84%) and the remainder had 8 or more siblings.

Computed correct responses for the 5 subsections, based on gender, are shown in Table 3. The overall results showed that about 2% of students did not get answers to any of the statements of subsections correctly. Correct answers for 1 to 3 statements ranged between 14-21%, with 39% answering 4 statements correctly. Only 5% of students answered all 5 subsection statements correctly. Data of further statistical analysis to reveal influencing factors on the answers of the 5 subsections are shown in Table 4. The type of college only influenced subsec-

Item	Theoretical Colleges	Scientific Colleges	Total
Gender			
Female	143	142	285
Male	97	58	155
Age (y)			
17-18	186	146	332
19-20	54	54	108
Nationality			
Kuwaiti	198	176	374
Non-Kuwaiti	42	24	66
Governorate of residence			
Al-Asima	33	60	93
Al-Ahmadi	12	19	31
Hawalli	74	68	142
Al-Jahraa	40	4	44
Al-Farawania	52	27	79
Mubarak Al-Kabir	29	22	51
Father education			
Up to high school	7	26	33
Diploma	52	20	72
>University	171	154	335
Mother education			
Up to high school	77	25	102
Diploma	68	67	135
>University	95	108	203
Monthly income (KD)			
500-1000	7	19	26
1000-1500	27	58	85
1500-2000	106	60	166
>2000	100	63	163
No. of siblings			
0-3	60	42	102
4-7	127	139	266
8-11	51	19	70
>11	2	0	2

Table 2: Demographic data of the theoretical (n=240) and scientific (n=200) college student population (total n=440).

Status of Answers	Females No. (%)	Males No. (%)	Total No. (%)
All Wrong Answers	3(1.1)	4(2.6)	7(1.6)
One Correct Answer	53(18.6)	30(19.4)	83(18.9)
Two Correct Answers	40(14.0)	21(13.5)	61(13.9)
Three Correct Answers	65(22.8)	29(18.7)	94(21.4)
Four Correct Answers	108(37.9)	64(41.3)	172(39.1)
All Correct Answers	16(5.6)	7(4.5)	23(5.2)
Total Responses	285	155	440

Table 3: Computed correct responses for statements, based on the gender of students.

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Item	Subsection*									
	1A	**1B****	**2A****	2B	3A	**3B****	4A	**4B****	5A	**5B****
College type										
Theoretical	87	**153**	**81**	159	73	**167**	90	**150**	75	**165**
Scientific	84	**116**	**84**	116	53	**147**	112	**88**	61	**139**
***p* value**	0.219		0.075		0.367		0.001		0.866	
Gender										
Female	112	**173**	**107**	178	82	**203**	128	**157**	85	**200**
Male	59	**96**	**58**	97	44	**111**	74	**81**	51	**104**
***p* value**	0.800		0.980		0.932		0.570		0.506	
Age										
17-18	137	**194**	**121**	210	99	**232**	152	**179**	100	**231**
19-20	34	**75**	**44**	65	27	**82**	50	**59**	36	**73**
***p* value**	0.241		0.145		0.339		0.908		0.436	
Nationality										
Kuwaiti	151	**223**	**148**	226	107	**267**	173	**201**	116	**258**
Non-Kuwaiti	20	**46**	**17**	49	19	**47**	29	**37**	20	**46**
***p* value**	0.365		0.065		0.409		0.541		0.827	
Governorate										
Al-Asima	36	**57**	**38**	55	26	**67**	43	**50**	27	**66**
Al-Ahmadi	9	**22**	**8**	23	5	**26**	16	**15**	7	**24**
Hawalli	56	**86**	**49**	93	43	**99**	71	**71**	49	**93**
Al-Jahraa	16	**28**	**16**	28	10	**34**	18	**26**	14	**30**
Al-Farawania	37	**42**	**34**	45	28	**51**	32	**47**	26	**53**
M. Al-Kabir	17	**34**	**20**	31	14	**37**	22	**29**	13	**38**
***p* value**	0.529		0.545		0.014		0.839		0.634	
Father education										
≤ High school	9	**24**	**14**	19	1	**32**	18	**15**	7	**26**
Diploma	26	**46**	**30**	42	19	**53**	32	**40**	25	**47**
>University	136	**199**	**121**	214	106	**229**	152	**183**	104	**231**
***p* value**	0.244		0.564		0.399		0.719		0.720	
Mother education										
≤High school	39	**63**	**37**	65	21	**81**	39	**63**	23	**79**
Diploma	52	**83**	**53**	82	41	**94**	59	**76**	42	**93**
>University	80	**123**	**75**	128	64	**139**	104	**99**	71	**132**
***p* value**	0.337		0.731		0.089		0.100		0.807	
Mon. income (KD)										
500-1000	13	**13**	**11**	15	1	**25**	13	**13**	8	**18**
1000-1500	28	**57**	**37**	48	21	**64**	50	**35**	25	**60**
1500-2000	67	**99**	**61**	105	52	**114**	69	**97**	57	**109**
>2000	78	**100**	**56**	107	52	**111**	70	**93**	46	**117**
***p* value**	0.674		0.731		0.089		0.100		0.807	
No. of siblings										
0-3	34	**68**	**28**	74	20	**82**	45	**57**	26	**76**
4-7	104	**162**	**102**	164	79	**187**	125	**141**	92	**174**
8-11	32	**38**	**23**	37	26	**44**	31	**39**	17	**53**
>11	1	**1**	**2**	0	1	**1**	1	**1**	1	**1**
***p* value**	0.883		0.510		0.157		0.046		0.307	

*Total number of responses to both A and B for each subsection is 440.
**Numbers in bold in columns are those of correct answers.

Table 4: Student responses to statements and results of influencing factors based on ANOVA.

tion 4(p<0.001), the governorate of residence influenced subsection 3(p<0.01), and the number of siblings had an influence on subsection 2(p<0.04). Other possible influencing factors, such as: gender, age, nationality, education level of father, education level of mother, and monthly family income did not have significant effects on student answers of any of the 5 subsections of the questionnaire.

DISCUSSION

Since the discovery of oil, Kuwait and the rest of the Gulf Cooperation Council (GCC) countries have gone through a transition towards urbanization. Most of these countries enjoy economic affluence and the comfort of modern life. Food supply is abundant and many of the fast food establishments are wide-spread in this region.[9] Increased food consumption and lack of sufficient level of physical activity among populations of these countries resulted in an alarming high rate of overweight and obesity.[10] Overweight and obesity are considered as a risk factor for many chronic diseases, thus they constitute a serious threat to public health. Many of the nutrition-related diseases in this region; such as: diabetes, hypertension,[11] and coronary heart disease[12] are most prevalent. As all segments of the population are subjected to such societal conditions, it would be natural to expect

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that university students are also affected by such circumstances.

The ratio of female to male student enrollment at Kuwait University has been nearly 2:1 since 2009[7] and continues to be about the same. Our study sample was in close accordance with such a ratio; thus, it can be considered as representative. Also, students represented different theoretical-type and science-oriented colleges. First-year students were chosen for this study, so that the influence of their study in subsequent years would be minimized. Demographic parameters chosen were those that were expected to be influential on student perception of body weight gain. Students of this study were: close in age, represented both genders, mostly Kuwaiti nationals, from different locations in the country, mostly with university-educated fathers, educated mothers, majority from on the "well-to-do" families, and mostly with up to 7 siblings.

Computed correct responses to the contents of the 5 subsection of the administered questionnaire were generally low, with only 5% of students answering all 5 correctly. This was not a surprise, as such could be related to the reported fair level score of nutrition knowledge and a low level of awareness about the relationship between nutrition and disease among first-year Kuwait University.[7] Further analysis of the data revealed that most demographic factors did not prominently influence student perception on aspects of body weight gain, with the exception of a few. This could be a function of the personality development attained during the transition from high school to the university environment, in spite of that most Kuwait University students live at their family homes and commute between them daily. However, it was expected that students of science-oriented colleges would have higher percentages of correct answers than their counterparts at the theoretical-type.

Dimensions of the issue at hand has to do with the global, including the Eastern Mediterranean Region[13] problem of overweight and obesity, nutritional habits, individual lifestyle, level of nutrition education, and individual perception of body weight and shape. The World Health Organization (WHO) of the United Nations considers that body weight gain as one of the leading global health problems and recommended that promotion of weight loss as one strategy to fight this global overweight and obesity epidemic.[14,15] However, most people who lose weight through lifestyle modifications tend to regain the weight within several years.[16] Thus, there seems to be a need for more proactive and effective strategies to combat this danger. Overweight and obesity represent a threat to public health for all segments of society in Kuwait, including: children,[17] adolescents,[10,18] adults,[19] and the elderly.[20]

What became known as the "freshman 15" was coined in the United States to indicate that students attending their first year of university or college gain about 15 lb (6.8 kg).[21,22] This was found to be significantly more weight than age-matched individuals who did not attend university or college.[23] Students gained approximately 6 kg after four years of college and overweight and obesity increased from 18 to 31% by the end of a study.[24] In the United States, most students move to the university campus – where they typically have "all-you-can-eat" meal plans and lack of parental supervision.[25] Also, during the freshman time period at a university or college, many social forces act on students to change their feeding, drinking, and sporting behaviors.[26] Many students who were active in sports in high school, either stopped being active or were less active when they joined the university.[24] Thus, the freshman period at university or college has been identified as a period of high risk for weight gain.

This university student body weight gain phenomenon was also studied in Europe. In Belgium, 68% of students in their first semester at the university gained an average of 1.0 kg in weight and 66 showed an increase in body mass index (BMI).[27] In The Netherlands, students gained an average of 1.1 kg in weight in first 3 months in the university and the weight gain continued throughout the 4 years of their education, with averages of 6 kg for males and nearly 2 kg for females. Students with weight gain experienced hindrance in exercise and mental well-being. Only those students who did not have irregular eating habits wanted to change their lifestyle.[28] In Spain, female and male students were found to lead a sedentary lifestyle in their first year at the university and as the academic year progressed, dietary habits deviated much from the healthy Mediterranean-type diet.[29] Thus, it was concluded that university students represent a social group that is at risk of having inappropriate nutritional habits and lifestyle.

Misperception of self-reported body weight and shape among university students and other humans seems to be universal across the globe. This misperception represents a difficulty in view of accurate data collection and in mapping appropriate strategies for curbing the obesity problem. In the United States, 48% of university students who were overweight and 23% of those who were obese perceived themselves as being in the healthy weight category. Students overestimated their healthy weight status, while underestimating their overweight status.[30] Overweight and obese individuals who misperceived their weight status were less likely to want to lose weight or have tried to lose weight, as compared to overweight and obese individuals who perceived their weight accurately. Females and males who misperceived their weight were also less likely to be engaged in more physical activity.[31] A nationally representative sample of 50,240 students of 9-12 grade students in both public and private schools - the Youth Risk Behavior Surveillance Survey (YRBSS) that took place between 2001-2009, showed that adolescents who perceived themselves as overweight had a stronger intention to lose weight. However, they did not develop better eating or exercise habits. In contrast, normal-weight adolescents, if they perceived themselves as overweight – were more likely to engage in health-compromising weight loss methods. It was concluded that it is critical to transform weight loss intentions to actual behaviors, in addition to having behavioral interventions to combat childhood obesity.[32]

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A study across 7 European countries showed that between 32-68% of student populations were satisfied about their body weight, while large proportions were dissatisfied and were trying to lose weight. Their perceived weight did not always reflect actual weight status based on the BMI. Females, in particular, perceived themselves as being overweight, despite low rates of obesity among them.[33] Perception of body image by Italian university students showed that greater dissatisfaction and higher weight status perception consistency in females than in males among those examined.[34] Studies of body weight perception among university students were conducted in the Far East. In Korea, height, weight, and the distribution of obesity index showed significant differences between female and male college students. Also, differences were found between genders about self-perception of body image and in the necessity for body weight control.[35] Percentages of 29 and 26% of both female and male Korean adolescents misperceived their body weight status, respectively. Within each misperception, overestimation was higher than underestimation. Weight misperception was found to be associated with socio-demographic factors such as gender, age, BMI, place of residence, and maternal education level.[36] Eating behavior, perception of body shape, and physical status among Japanese university students were studied. Restrained, emotional, and external eating habits were higher in the females than in the males and ideal body shape was lower than its perception among females. It was concluded that gender differences regarding ideal body shape were related to eating behavior.[37] Prevalence of overweight and obesity among Japanese and Korean female university students was low. Body shape perception and ideal body shape were strongly influenced by socioeconomic factors.[38] In Thailand, both female and male university students significantly under-reported their weights and over-reported their heights, which showed discrepancies between perceived and measured (true) data.[39]

Collectively, studies have shown that misperceptions of body weight, height, BMI, and body shape of university students are subjected to a variety of influencing factors. Such factors include: gender,[35,36] age,[36] place of residence,[36] maternal education level,[36] eating behavior,[37] and socioeconomic factors.[38] Aspects of body weight, height, BMI, and body shape are all related to nutrition and lifestyle. Since university students viewed as a group that is at risk of having inappropriate nutritional habits and lifestyle,[29] enhancing their self-awareness of these aspects and about their related health risks would be of an empirical importance. Such can be achieved by interventional programs that raise the level of nutrition knowledge of adolescents and of their parents.[36] Also, it is critical to transform weight loss intentions to actual behaviors to combat childhood obesity.[32] It was recommended that a short course on nutrition and nutrition-related diseases to be conducted across all study disciplines at Kuwait University.[7] As results of this study showed low percentages of correct answers to the subsections of the administered questionnaire, the previous recommendation for such an educational course is hereby repeated. Also, since the internet is widely-available and that university students are among the avid users of computers, devised and implemented online awareness programs can prove to be as valuable tools. A study demonstrated the feasibility of an inexpensive internet-based intervention in preventing weight gain among college students in the first semester of college.[40] Other innovative means of electronic media communication that can be interactive in nature may prove to be beneficial to university students

CONCLUSION

This work was conducted to study the perception of first-year Kuwait University students at 11 colleges, 6 of the theoretical-type and 5 of the science-oriented type. Females represented 65% and males represented 35% of a total of 440 students, who voluntarily responded to an administered questionnaire. Data of correct answers to questionnaire subsections on body weight gain were poor to fair, thus indicating a deficit in relevant knowledge. These results necessitate the need to enhance many aspects of nutrition and lifestyle. It is recommended that a short course on nutrition and the risks for disease that result from inadequate or improper nutrition ought to be offered to first-year students across all disciplines being studies at the university. Development of online, and/or other computer-oriented, programs for enhancing students' awareness and knowledge can be devised and implemented. Such programs that are interactive in nature could prove advantageous, as the internet is widely-available and nowadays university students are avid users of it. This approach can be considered as an inexpensive means of nutritional intervention and should be tried alongside all other means of education and intervention.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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