

Dietary Habits of Saudi Medical Students at University of Dammam

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Abstract

Objective: To evaluate the dietary habits and life style of medical students.

Design: Methods: This is a cross sectional study as self-reported questionnaire for the male and female medical students at College of Medicine University of Dammam, eastern province, Kingdom of Saudi Arabia, comparing their habits and life style according to their gender and to their academic levels; 1st, 3rd and 6th year.

Results: 562 students participated in the study with response rate of 91%, average age: 20.2776± 2.06175), males students were 333 (59.25%) and female students were 229 (40.75%) corresponding to the actual male to female ratio in this medical school. The majority of the students (91.3%) were consuming fast foods, majority are males (85%) do it 3 times or more per week, only 8.7% denied eating fast food with no significant difference between the three academic levels.

Majority of students are aware of the benefits of the vegetables and fruits and the disadvantage of the soft drinks yet most of them consume a lot of soft drinks and less of vegetables and fruits.

Physical exercise was not done regularly in 65% of the male medical students and 80% of the female with almost similar percentage in all the three levels.

Conclusion: Contrary to the expectations and regardless of studying in medical college, our medical students; both male and females at different academic levels are having major bad dietary habits and life style that is comparable to the general population in the kingdom.

Key Words: dietary habits, life style, medical students, Kingdom of Saudi Arabia

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This study has been carried out at college of medicine, both male and female branches, University of Dammam, Kingdom of Saudi Arabia.

Introduction

Dietary and health habits in any population might be a clue for the general wellbeing and the magnitude of their risks to have the lifestyle disorders ⁽¹⁾ like obesity, type 2 diabetes mellitus, dyslipidemia, smoking, related lung problems, hypertension and coronary heart disease, which are collectively are the main cause of death over all the countries. ⁽²⁾

Dietary habits; quality and quantity of the food constitute a major rule in the process of pathogenesis of the above mentioned disorders. ⁽³⁾

The college students; representing the young age population of community, for different reasons are prone to eat unhealthy foods and to have bad health habits during their college years which might affect their wellbeing and increase the risk of obesity, diabetes and coronary heart disease ^(4, 5) like fast food consumption, lower vegetable and fruit intake in face of less physical activities and a lot of computer & TV watching hours.

In Saudi Arabia the dietary habits have changed a lot over the past decades correlating with the rapid socioeconomic jump at the level of the government and the population, these dramatic life style changes affected all the age groups mainly children and adolescent. ^(6, 7)

Since the youths and adolescents represent a major section of our community, many studies have shown the extent and consequences of poor dietary habits on this group of population like increased prevalence of obesity, ^(8 -14) even these parameters were studied at the level of adolescents and the university students and found the same trend. ⁽¹⁵⁻¹⁷⁾ Similar findings were found in the school children in local as international studies, ⁽¹⁸⁾ that led to increase the prevalence of metabolic diseases such as type 2 diabetes mellitus up to (23.7%) in Saudi population affecting greatly those living in the urban areas. ⁽¹⁹⁾

Many researchers studied the prevalence and impact of the dietary habits and life style of the children, adolescent and university students in Saudi Arabia, almost all of them showed that the dietary habits and life style in those students is not healthy and not following the international guidelines requirement, ⁽²⁰⁾ similar findings were found in Saudi female university students. ⁽¹³⁾ Medical students

expected to have better dietary habits and adopt a healthy lifestyle since they are expected to have better medical knowledge about the importance of healthy dietary habits and expected to be a role model for their peers in implicating such good and healthy dietary habits.

Medical school students' habits were seldom studied in the literature, only few studies had studied these factors in medical students as they are exposed to theoretical and clinical knowledge of the benefits of healthy dietary habits as well as exposure to the deleterious outcomes of poor habits on the wellbeing of the human subjects. ^(21, 22) However; these habits were not studied internationally in depth for medical students, locally we found only one paper which studied these habits as being risk factors for coronary heart disease in medical students. ⁽²³⁾ Thus, there is a need for comprehensive dietary habits and life style assessment in medical students at different academic levels which might help to diagnose such problems earlier and to trace them at different academic levels to help for better solutions.

The purpose of this study was to evaluate the baseline nutritional and life style habits of medical students at first year which reflect the pre- college status and to compare it to third and 6th level medical students for both males and female students exposed to variable amount and quality of health science according to their academic levels, and to assess the different possible contributing factors.

Methods:

Participants and settings:

This cross sectional study through self-administered anonymous questionnaire has been performed to evaluate and compare the dietary habits and lifestyle of medical students in both genders attending College of Medicine University of Dammam, Kingdom of Saudi Arabia. All the students invited to participate in this study were studying in the first semester of 2012-2013 academic year at three different academic levels; 1st year-students representing the premedical school level, 3rd year students expected to complete basic medical sciences and 6th year (the final year) expected to have completed almost two years of clinical rotations in various medical and surgical specialties.

Sampling and sample size

Because our study was cross sectional in nature, we tried to involve all the males and female students in each academic year.

Questionnaire

After having detailed review of literature and discussions with the biostatistician about the topic, we developed a simple structured questionnaire in Arabic.

The students participated in the study by a self-reported questionnaire. For all of them we obtained written informed consents, a self-administered questionnaire was used to collect the demographic data, social factors, dietary habits, lifestyle and awareness of health information among medical students at first, third and sixth year.

The questionnaire had two sections:

The first section of the questionnaire consisted of questions regarding to academic level, gender, age, marital status, if having chronic illness and social factors; city of residency, if living with parents and parental highest academic achievement.

The second section consists of questions about dietary habits and their frequency: fast food, soft drinks, dairy products intake, and fruits and vegetables intake in addition to students' awareness of the benefits and risks of all those foods. Further, students were asked about their physical activity; type, duration and frequency. Also they got questions on their current weight, height then we calculated the body mass index (BMI) as the product of weight (kg)/ squared height (m²). based on the guidelines proposed by the National Institutes of Health, underweight is defined as BMI <18.5 kg/m², normal weight as BMI 18.5–24.9 kg/m², overweight as BMI 25.0–29.9 kg/m² and obesity as BMI 30.0 kg/m².⁽²⁴⁾

Data collection

The study did not need the IRB approval because it is non-experimental study yet we got the official permission from the college dean office to carry out this survey, all students volunteered to participate in the study. The questionnaires were distributed to the students during their teaching sessions and students were briefed about the objectives of the study and were instructed on spot by the researcher

and assistants, how to fill out the questionnaire in a comprehensive and realistic way.

Statistical analysis:

Data were expressed as mean \pm SD/ E and were analyzed statistically using the Statistical Package for Social Sciences version 14.0 (SPSS Inc., Chicago, IL, USA). The differences in proportions of qualitative variables between the three groups were analyzed. Mann Whitney U test was used to test the difference between the normally distributed quantitative variables. Non-parametric variables were analyzed and tested using Chi-squared tests. P-values were made on the basis of 2-tailed tests. The group differences were considered statistically significant if p value is less than 0.05.

Results

The total number of participants was 562 out of total 620 with response rate of 91% with average age: 20.2776 \pm 2.06175), males students were 333 (59.25%) and female students were 229 (40.75%) which represent the actual male to female ratio in this medical school.

In the first year we got 306 students (53.3%), third year there were 125 student (21.8%), and the sixth year there were 131students (22.8%).

Demographic and social characteristics are shown in Table 1; Five hundred and five students (90%) were singles and 57 students (10%) were married. There were 131 (23.3%) students living with their family, most of the students 411 (73.0%) were from the close area to the university, which includes Khobar, Qateef and Dammam while 151 (27.0%) of the students were from outside the area.

In regard to the level of parents education, the illiterate among fathers and mother was 16 (2.9) and 35 (6.2%) respectively, university degree and post university were 231 (41.2%) and 113 (20.3%) respectively among fathers compared to 198 (35.1%) and 32 (5.7%) for the mothers. Three hundred and eighty five (68.9%) of the mothers were housewives and 164 (29.35) of them were public workers, while most of the fathers were public employees 237 (41.1%) and only 59 (10.9%) of them were without work, 5 fathers (2.3%) and 3 mothers (0.5%) were dead. **Table 2** is summarizing the

students' response to the questionnaire related to eating habits; the majority of the students (91.3%) admitted eating fast foods, most of them do it twice or less per week, and about 25% of the students; most of them are males (85%) do it 3 times or more per week;; when comparing the groups there was no significant difference between the year level, although

94.1% of the students are aware of the disadvantages of the soft drinks with no significant difference between the gender or even the year level, yet 77.4% of all the three levels are consuming soft drinks slightly higher in females versus male (85% and 67% respectively), furthermore 30% of them do it 3 times or more per week.

Table 1: Demographical data

Variable	Categories	N	%
Gender	Male	333	59.3
	Female	229	40.7
Marital status	Single	505	89.9
	Married	57	10.1
University Year	First	306	54.4
	Third	125	22.2
	Sixth	131	23.3
Live with your Family	Yes	431	76.7
	No	131	23.3
Residence Area	Dammam	148	26.3
	Alkhobar	103	18.3
	Algateef	160	28.5
	Other	151	26.9
Father education	Illiterate	16	2.9
	Primary	32	5.7
	Intermediate	47	8.4
	Secondary	122	21.7
	University	231	41.2
	Post University	113	20.1
Mother Education	Illiterate	35	6.2
	Primary	56	9.9
	Intermediate	65	11.5
	Secondary	178	31.6
	University	198	35.1
	Post University	32	5.7
Father Occupation	Without Work	59	10.6
	Private Work	257	46.0
	Public Work	237	41.1
	Dead	5	2.3
Mother Occupation	Without Work	385	68.9
	Private Work	7	1.3
	Public Work	164	29.3
	Dead	3	0.5

Table 2. Dietary habits and lifestyle in the three different academic levels

Dietary Habits	Academic Levels					
	1 st Year		3 rd Year		6 th Year	
	Male	Female	Male	Female	Male	Female
	(n=183)	(n=123)	(n=75)	(n=50)	(n=77)	(n=54)
Drink soft drinks						
Yes	123(67)	106(86)	51(68)	42(84)	48(62)	46(85)
≤ 2 Cans per week	88(72)	76(72)	36(71)	29(69)	34(71)	31(68)
≥3 Cans per week	35(29)	30(28)	15(29)	13(31)	14 (29)	15 (33)
Know the harms of the soft drinks						
Yes	168(92)	116(94)	71(95)	46(92)	74(96)	50(92)
Eat fast foods						
Yes	165(90)	108(88)	69(92)	42(85)	72(94)	54(90)
≤2 Meal per week	125(76)	92(85)	51(75)	37(88)	54(75)	49(91)
≥ 3 Meals per week	40(24)	16(15)	18(26)	5(12)	18(25)	5(9)
Know the benefits of the dairy products						
Yes	165(90)	113(92)	66(88)	45(90)	68(88)	50(93)
Take dairy product regularly	106(58)	74(60)	44(59)	31(62)	45(58)	33(62)
Take fruits and vegetables regularly	115(63)	81(66)	46(61)	32(64)	50(65)	35(65)
Practice physical exercise regularly						
Yes	64(35)	24(20)	26(36)	9(19)	28(36)	11(20)
Minutes per day (mean)	40	26	32	31	26	24
Times per week (mean)	3	3	3	2	2	3
Data are expressed as number and (%)						

Majority of students 90.45% know the benefits of dairy products across all the academic years in both gender, however only 59.25% of them take dairy products regularly. Eating vegetables and fruits in regular basis was reported in only 65.15%, with no significant differences at the level of academic year and the gender.

Physical exercise was not done regularly in 65% of the male and 80% of the female at almost similar percentage in all the three levels. The favorite exercise for males was walking in 37.5% followed by football in 32.3%, while in females walking was the most common pattern of exercise 55%, followed by yoga 35% and jogging 10%.

The mean self-reported height for males was 168 cm and their mean weight was 69 kg, while the mean height for female is 155.5 cm and the mean weight is 68.5 kg, the calculated mean BMI for males was 24.1 kg/m² which is considered normal range according to National Institutes of Health ⁽²⁴⁾ while the average females BMI it is 29.4kg/m² which is considered in the overweight range with no significant difference in comparing the average according to academic levels ($p > 0.05$).

Discussion

Regardless of the academic year level and the gender there was high percentage of bad dietary habits among the medical students like high percentage of consumption fast food and soft drink, in contrast there was very low percentage of students having regular physical exercise in both sexes.

There is very high percentage of single medical students (90%), although 76% of them live with their families, and being single make it likely to have unhealthy dietary choices, ^(25, 26) more than 90% of the students had their parents got respectable levels of education, which has been found to have positive impact on the dietary habits of their kids ⁽²⁷⁾ however this was not shown in our study since majority of the students have unhealthy dietary habits regardless of their parental education levels.

Consumption of fast food is well correlated to the acquired cardiovascular disease, ^(28, 29) although most of the student are living with their parents yet the majority of them (91.3%) admitted eating fast foods, which is contrary to what has been found in the literature that living

with the family is protective against bad dietary choices, ⁽²⁵⁾ and this is much higher than Lithuanian study having only 28.1% of first year female students and 22.8% of their male peers consuming fast food, ⁽³⁰⁾ however our result is comparable to another local study in non-medical university-students. ⁽³¹⁾

In regard to the knowledge and consumption of soft drinks; there was no significant effect of the academic level on the student knowledge about the importance of the healthy foods like vegetable, fruits and dairy products as well as their knowledge about the bad effects of the soft drinks and the fast foods.

In regard to dairy products knowledge and their consumption; despite the fact that 90.45% of students know the benefits of dairy products, only 59.25% of them consume fresh milk regularly which is comparable to other local studies in non-medical students, ^(31, 32) however that is much lower than the Zagreb study where 83% of the 3rd and 6th medical students consume milk and other dairy products. ⁽³³⁾

Despite the published importance of the regular vegetables and fruits consumption as protective nutrients and rich source of active vitamins ^(34, 35) we found that vegetables and or fruits in regular basis was consumed by two third of the students both males and females in all the three levels, which is similar percentage to other Saudi studies ^(14, 30, 36) and in another middle-east country university student ⁽³⁶⁾ which was also shown in US university students as they consume less than the recommended amount and frequency, ⁽³⁸⁾ our results are comparable to other studies in Europe and Pakistan medical students. ^(29, 33, 39) Although higher students' academic level enhanced their theoretical knowledge about the benefits of healthy dietary habits and the unfavorable consequences of bad habits, it did not have positive effect on their actual daily dietary habits

In this study we found that the 1st year medical students representing the secondary school adolescents have unhealthy dietary habits as this have been found in many studies. ⁽⁸⁻¹⁴⁾ In general Saudi adolescents and university students have developed bad dietary and lifestyle habits as a result of the progressive improvement in the socioeconomic status of Saudi Arabia over the last 10-20

years⁽⁴⁰⁾ in the other hand this led to negative impact on the general well-being and increased chronic metabolic diseases among the Saudi population like obesity and type 2 diabetes mellitus.^(9, 41)

Physical activity is a major determinant of health; compared to international literature Saudi adolescents have more sedentary lifestyle and less physical activity,⁽⁴²⁾

Yahia Al-Nakeeb et al⁽¹⁶⁾ found that Young males and females from Al-Ahsa (Eastern province in Saudi Arabia) reported less physical activity and recorded higher percentage of overweight and obesity than youth in Birmingham and Coventry in United Kingdom.

The 3rd year medical students expected to have to very good basic medical knowledge to be reflected in a healthier dietary habits compared to the 1st year colleagues, however in our study we found no significant difference between these two levels of students in regard to the behavior, exercise and even fast food intake Compared to similar studies done in Karachi,⁽³⁹⁾ Zagreb⁽³³⁾ and another multi-country study, our student are much less physically active.⁽⁴³⁾

Collectively, fast food rich in fat in addition to physical inactivity were found to be risk factors for the coronary heart disease among the Saudi male university students⁽⁴⁴⁾ and were found also in the clinical-years male medical students in King Abdulaziz University,⁽²³⁾ most of our students both males and females and regardless of their academic levels have more fast food and soft drink ingestion in contrary they have less frequent and shorter duration of physical exercise, the Zagreb study⁽³³⁾ about 47% of medical students were involved in regular exercise although majority of their sample was females, also they found the first year students are having significantly more frequent and better type of exercise compared to the 6th year students, while in Pakistani study⁽³⁹⁾ they found 37.9% of their sample have low level of physical activity, lastly in Lithuanian study⁽³⁰⁾ found more than half (52.1%) of first-year female students and 43.9% of their male peers did not do exercise at all, while physical activity reported by third-year female and male students were 41.0% and 24.4% respectively.

Third year student in our study are relatively less in consuming soft drinks compared to 1st

and 6th level students, with no significant gender differences, and in average this is slightly better than that in Saudi teaching college male students 85%,⁽³²⁾ however, it is much more than the Zagreb medical students study;⁽³³⁾ 56.8% in the first year and 48.2% in the 6th year.

Overall we found the medical students both males and female are having unhealthy dietary habits regardless of their academic level which is similar to what was found by Nghat Nisar et al.⁽²²⁾ this might be explained either by the strong personal or cultural lifestyle effect or the medical college courses are not emphasizing much on these important health issues.

Body mass index (BMI) is an important parameter for obesity, we found the mean BMI for all the males to be 24.1 kg/m² which is considered normal range according to National Institutes of Health,⁽²⁴⁾ while the average females BMI was 29.4kg/m² which is considered in the overweight range with no significant difference among their academic levels ($p > 0.05$), our finding is correlating to the reported Saudi female trends but in contrary to other female medical students in US who were within normal weight range,⁽⁴⁵⁾ the male BMI is comparable to King Abdulaziz University study⁽²³⁾ however their female average BMI was lower 23.30 Kg/m². In the Pakistani study⁽³⁹⁾ they found the mean BMI to be 20.47 ± 3.02 kg/m², we had 37 (28%) students were underweight and 23 (17.4%) were overweight; further more in Zagreb study⁽³³⁾ they found 23.5% of first-year and 33.7% of sixth-year males were overweight, however both studies did not differentiate between the males and females measures.

Conclusion

Majority of medical students have unhealthy dietary habits and have poor physical activity in both genders regardless of their academic levels. Medical students need to have strategic intensive university and college-based plans and counseling for their nutrition and physical activity which will be reflected on better community health and wellbeing.

Study limitations:

This study relied on self-reported questionnaires by the students which might result in missing some of the information or reporting bias.

Acknowledgement:

The author would like to thank Dr. Ammar Khamis; Associate Professor of Biostatistics, Department of Family Medicine, University of Dammam, for his great help in statistical analysis, I deliver thanks and appreciation to Dr. Dalal Bubshait and Dr. Shaikha Aldossary, Pediatric Specialists; at Department of Pediatrics for their help in distributing and collecting the questionnaires in the female medical college.

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