Original article :

Dietary Habits of Saudi Medical Students at King Saud bin Abdulaziz University for Health Sciences in Riyadh, Saudi Arabia

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Abstract

Background:
Young adults including college students, frequently have an unhealthy lifestyle and diet. In the current study, we aimed to assess the dietary habits and physical activity, as well asthe relationship with gender, economic status, and academic level ofSaudi medical students at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia.

Methods:
The design was a cross-sectional survey study. Data was collected with a validated self-administered questionnaire.

Results:
The sample size realized as 259 participants, with just more than half of the sample (54%) male, anda mean age of 22±2.12 years.The majority (95.2%) of the malegroup reported consuming fast foods compared to 80.7% of the female group. For both genders, fast

الملخص

الخلفية:
معظم الشباب بالمجتمع وطلاب الجامعات لاسباب مختلفة يميلون الى تناول الاكل الغير صحي وعادات غذائية غير صحية. في هذه الدراسة كان هدفنا تقييم عادات الاكل والنشاط البدني وعلاقتها بالجنس, الحلة الاقتصادية والمرحلة الجامعية بين طلاب الطب في جامعة الملك سعود بن عبدالعزيز للعلوم الصحية بالرياض , المملكة العربية السعودية.

طريقة البحث :
تم عمل هذه الدراسة على طريقة استقضاء مقطعي. تم جمع البيانات عن طريق استبيان تم توزيعه.

النتائج:
عدد المشاركين بالدراسة كان ٢٥٩ طالب طب. ٥٤ بالمئة ذكور و ٤٩ بالمئة اناث. متوسط العمر ٢٢ سنة زائد او ناقص عامين. الغالبية العظمى من المشاركين ٩٥,٢ بالمئة من طلاب الطب الذكور يتناولون الوجبات السريعة. للإناث بلغت نسبة الاناث اللاتي يتناولن الوجبات السريعة ٨٠,٧ بالمئة. لكلا الجنسين, كانوا يتناولون الوجبات السريعة للعشاء. نسبة عالية من الذكور ومن ذوو الدخل المرتفع يتناولون المقليات والمعجناتاكثر من الاناث وذوو الدخل المنخفض. التمارين اليومية والاكل الصحي,بلغت نسبة المشاركين

foods were mostly consumed during dinner. The prevalence of consuming fried foods and pastrieswere higher in the male and high-income groups compared tothe female and low-income groups(64.1% and 66.7% vs. 50% and 45.7%, respectively, p-value<0.05). In terms ofexercise, only 37.1% were exercising regularly. The majority (66.7%) of the healthy diet group, exercised regularly.

Conclusion:

Fast food consumption was highly prevalent in Saudi medical students, especially in males and high-income students and only a small proportion was physically active on a regular basis. The current study highlights the need for encouraging a healthy lifestyle, healthy dietaryhabits as well as a physically active daily routine, for medical students.

Key words:

dietary habits, Saudi medical students, fast food, physical activity

الذين يداومون على التمارين اليومية ٣٧,١ بالمئة فقط. نسبة ٦٦,٧ بالمئة من الذين يناولون الاكل الصحي يداومون على التمارين اليومية.

الخاتمة:

تناول الوجبات السريعة شائع بين طلاب الطب خصوصا الذكور وذوو الدخل المرتفع. وعلى النقيض, نسبة قليلة من هؤلاء الطلاب يداومون على التمارين اليومية. وبذلك, دراستنا تحث على الحاجة الى التحفيز لتناول الاكل الصحي , العادات الصحية, والنشاط البدني

Introduction:

"Dietary habits are the total consumption of food, and an analysis of dietary habits provide evidence related to the food consumption habits within a large population, important for predicting disease risk [1]." "Food consumption differs between communities, depending on culture or personal preference. Every diet can be helpful or harmful to a person [2]." "An individual's health depends to a large degree on the food they consume, which may produce a feeling of wellbeing or diseases and conditions such as diabetes mellitus, obesity and hypertension [2] with a high risk of morbidity and mortality [3]." "Food is known to play a major role in the development of such diseases [4]."

"Dietary habits in younger age groups have public health implications because poor nutrition in childhood causes obesity and increased risk for type 2 diabetes, metabolic syndrome, and cardiovascular diseases [5]." "Younger people, including college students, frequently consumes an unhealthy diet, which may affect their health and increase their risk of obesity, di-

abetes and coronary heart disease [6.7]."

"Due to the accelerated growth in Saudi Arabia, food consumption and lifestyle have changed, affecting all age groups but mainly children and adolescents [8,9]." "Previous studies from Saudi Arabia investigating the dietary habits and lifestyle of children, adolescents and university students, reported that younger age groups tend to consume an unhealthy diet[10,11]."

"Reviewing the literature, few studies focused on medical students asit is accepted that they are exposed to clinical knowledge related tothe benefits of a healthy lifestyle and are knowledgeable about the poor outcomesrelated to an unhealthy diet [12,13]." Local studies in Saudi Arabia are limited. "Only one study which was from Al Qahtani (2016) [3] which reported that medical students, regardless of gender and academic year, are consuming an unhealthy diet and had a lifestyle compared with the population." The aim of the current study was to assess the dietary habits and physical activity, and their relationship with the gender, economic status, and academic level of the medical students at KSAU-HS. Knowing more about the dietary habits and lifestyle choices of Saudi medical students will facilitate the development of initiatives to create or increase awareness.

Materials and methods:

"This was a cross-sectional survey study of Saudi medical students at KSAU-HS. The data-collecting instrument was a pre-validated questionnaire [3], implemented after receiving permission to use the questionnaire from the corresponding author. "In addition to demographic data, the questionnaire included questions related to fast food consumption and physical activity, the frequency, income and academic level. The calculated sample size for this study was 259 medical students from both genders and all academic levels. Quota sampling has been used in the selection of the sample for using gender and academic year as strata. The population was firstly divided in male and female subgroups, and a specified proportion was selected for each academic year. The questionnaires were distributed to the students by the study authors, and they invited to completethe questionnaire after an explanation of the aims and objectives of the study, and assurance of confidentiality.

Statistical analysis:

An Excel spread sheet was used for data entry and SPSS 20 for the data management and analysis. Mean and standard deviation (SD) are used to describe numerical data (age and academic year), frequency and percentage to describe categorical data.

Results:

The sample size realized as 259 participants. Just more than half (54%) was male with the mean age of the sample22±2.12 years. Only a small proportion (1.9%) was married. Just more than half (52.9%, n=137) was pre-clinical students (2nd, 3rd and 4th year medical students) and 47.1% (n=122) was clinical students (5th and 6th year medical students). The majority (63.7%) of the sample reported a high income (≥20000 SAR) (Table 1).

Table 1: Subject characteristics (n=259)

Mean age (years)	22±2.12	n	%
Gender	Male	145	56
	female	114	44
College year	Preclinical	137	52.9
	Clinical	122	47.1
Marital Status	Single	254	98.1
	Married	5	1.9
Family income	Less than or equal 20000	94	36.3
	More than 20000	165	63.7

The dietary habits of the sample are displayed in Table 2. More males (69.7%) are consuming red meat compared to females (43%). Red meat consumption was also higher in the high-income group (61.2%) compared to 52.1% in the low-income group. Similar results were obtained for fried food consumption. A higher proportion of the male (64.1) and high-income (66.7%) groups consumed fried food and pastries compared to female (50%) and lower income group (45.7%). The differences were statistically significant (p-value<0.05 for both). In terms of breakfast, more females (50%) regularly ate a breakfast compared to males (42.1%). Notably, a statistically significant higher percentage of females had coffee in the morning than male (74.6% vs.55.2%, respectively, p-value=0.001).

Table 2: Details of dietary Habits

		n*	%
Gender& Red meat	Male	101	69.7
	Female	49	43.0
Income & Red meat	High income	101	61.2
	Low income	49	52.1
Gender & Fried food	Male	93	64.1
	Female	57	50.0
Income & Pastries	High Income	110	66.7
	Low income	43	45.7
Gender & Breakfast	Male	61	42.1
	Female	57	50.0
Gender & Coffee	Male	80	55.2
	Female	85	74.6

Table 3: Details about fast food consuming

			n*	%
Gender & Fast food	Male		138	95.2
	Female		92	80.7
Academic year & Fast food	Pre-clinical years		121	88.4
	Clinical years		109	89.3
Gender & Fast food per week	Male	Once or twice	60	41.4
		3 times or more	78	53.8

Gender & Fast food per week	Female	Once or twice	67	58.8
		3 times or more	24	21.9
Income & Fast food per week	High Income	Once or twice	79	47.9
		3 times or more	69	41.8
	Low income	Once or twice	48	51.1
		3 times or more	34	36.2
Gender & Fast food meal	Male	Lunch	25	18.2
		Dinner	70	51.1
		Lunch & Dinner	42	30.7
	Female	Lunch	24	26.1
		Dinner	40	43.5
		Lunch & Dinner	28	30.4
Income & Fast food money	High income	100<SR	24	15.1
		100-500 SR	108	67.9
		500> SR	27	17.0
	Low income	100<SR	32	35.6
		100-500 SR	44	48.9
		500> SR	14	15.6

.n refers to people who answer this question by yes*

The details of the fast food consumption in the sample are displayed in Table 3. The vast majority (95.2%) of the male group reported consuming fast foods, compared to 80.7% of the female group
(Figure 1 and 2). Regarding the relationship between the academic year and fast food consumption, a similar proportion of pre-clinical and clinical students reported consuming fast foods(88.4%, and 89.3% respectively).The frequency of fast food consumption was higher in the male group, with more than half (53.8%) reporting a consumption of three times or more per week. For the female group, more than half (58.8%) reported consumption once or twice per week. For both genders, the highest consumption occurred during dinner. For both low and high-income groups, the fast food related expenditure was between 100-500 SAR per month.

In terms ofexercise and dietary habits, only 37.1% indicated regular physical activity. A higher proportion (66.7%) of the healthy eating habits group, reported regular physical activity compared to the fast foods group with 63.2% reporting no physical activity. More than half of the breakfast and coffee drinking groups (54.2%, and 68.8%) reportedphysical activity. The results highlighted that participants eating less fast foods, reported a higher level of physical activity. In contrast, the group reporting no physical activity (48.5%) indicated consuming more than three fast food meals per week (Table 4).

Table 4: exercise & dietary habits

factor		n	%
Exercise regularly	Yes	96	37.1
	No	163	62.9
Exercise per week	One to 3 time	32	14.0
	More than 3 times	85	37.3

Exercise & healthy food	Exercise	64	66.7
	Do not exercise	74	45.4
Exercise & fried food	Exercise	47	49.0
	Do not exercise	103	63.2
Exercise & pastries	Exercise	49	51.0
	Do not exercise	104	63.8
Exercise & breakfast	Exercise	52	54.2
	Do not exercise	66	40.5
Exercise & coffee	Exercise	66	68.8
	Do not exercise	99	60.7
Exercise & fast food per week	1-2 times weekly	61	63.5
	3 or more weekly	24	25.0
Not exercising & fast food per week	times 1-2 weekly	66	40.5
	or more 3 weekly	79	48.5

Figure 1:

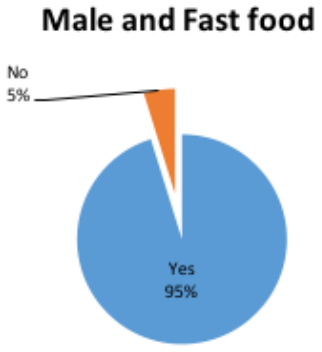
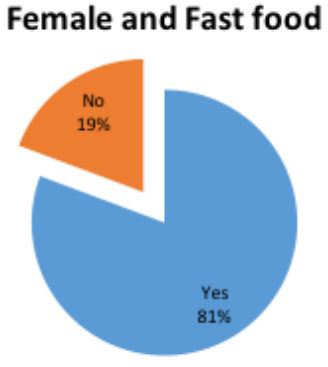


Figure 2:



Discussion:

"The current study aimed to evaluate the eating habits of medical students at a health sciences university in Riyadh, Saudi Arabia. Knowing dietary habits of future medical practitioners will support the development of an intervention to achieve potential health benefits for their future life[14]."

Irrespective of academic year and gender, there was a high consumption of an unhealthy diet in the sample. The unhealthy diet included consuming fast food and pastries frequently, with a low level of regular physical activities. "Our findings reflect the changed lifestyle of the whole Kingdom [15,18]." The medical knowledge acquired in the pre-clinical, clinical academic years failed to prevent the sample from adopting such emerging lifestyle habits." In a comparable Indian study, assessing the dietary habits, and physical activity of medical students at a teaching hospital, reported that healthy lifestyle practices including the awareness and practice of physical activity was good [19]." "This finding is in contrast to the current study with a high prevalence of unhealthy eating habits. More than half of sample did not have breakfast regularly; supported by Saranya et al [19] who reported that nearly half of the sample did not regularly have

breakfast, as well as Ganasegeran et al. and Chhaya et al [20,21].” “Students may associate skipping breakfast with weight control; however, it is known that participants who do not eat breakfast are more likely to eat unhealthy foods, resulting in weight gain[22].” “Breakfast is considered as the most important meal of the day, providing energy for the brain and improving learning. Breakfast contributes significantly to the total daily energy and nutrient intake, and omitting breakfast may affect the performance throughout the day [23].”

“Recent studies highlighted an association between the consumption of unprocessed red meat and processed meat and adverse health consequences, increasing risk for cancer [24], stroke [25], and all-cause [26] and cardiovascular mortality [27].” “Generally, dietary guidelines endorse limiting meat intake [28-30].” The current study revealed a high prevalence of red meat consumption, especially in males and high-income students.” Morse and Driskell investigating gender differences in fast food consumption in college students found that a larger percentage of males reported eating at fast food restaurants [31].” This is in line with the current study findings.

“Physical activities play an important role in maintaining health; however, Saudi adolescents tend to have a sedentary lifestyle and decreased physical activity [32].” “In a local study by Al-Nakeeb [33], a younger age in both genders had a decreased level of physical activity and a high percentage of obesity, compared to the same age group in the Birmingham and Coventry study in the United Kingdom.”

Fast food consumption, sedentary lifestyle, and obesity related diseases are increasing globallyand Saudi Arabia is not an exception. Modern food processing technologies contribute to this public health problem.” Overall, young Saudi population, which includes tertiary students, developed unhealthy dietary habits in addition to a sedentary lifestyle, created by the economic status improvement in the Kingdom of Saudi Arabia over the last 10 to 20 years[34].”

The current study has some limitations. The sample was restricted to medical students from one university in Riyadh, andthe findings cannot be generalized to the whole Kingdom. The body mass index (BMI) was not recorded and it was not possible to correlate the BMIwith fast food consumption and physical activity in the sample. Finally, fruit and vegetable consumption was not investigated.

Conclusion:

Fast food consumption was highly prevalent in Saudi medical student sample,

specifically in the male and high-income groups, regardless of their academic level. In addition, only a small proportion of the sample was physically activity. Health promotion interventions targeting medical students arehighly recommended, with a strong focus on the dietary pattern ofthe students. The current study reinforces the urgent need to encourage healthy lifestyles, healthy food habits and a physically active daily routine.

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