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Research Article

CALORIC ACTIVITY AMONG DENTAL STUDENTS (A SINGLE INSTITUTIONAL EXPERIENCE AT RIYADH ELM UNIVERSITY)

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Abstract:

Introduction: The study aims are to investigate the prevalence of overweight and obesity, measure the body mass index (BMI), and explore dietary habits, physical activity, and lifestyles. One more objective is to examine whether the dental academic lifestyle at Riyadh Elm University has contributed in any way to the student population's well-being.

Materials and methods: A single institutional study was done at Riyadh Elm University. First, we used two types of step-counting and caloric burner watches, the Apple watch and the Fitbit, to measure the participating students' steps count and the caloric activity during five weekdays from 8 a.m. until 4 p.m. Secondly, a self-administered, semi-structured questionnaire was disseminated among the students to get their weight and height for the BMI calculations. The questionnaire contains questions related to dietary habits, physical activity, and the lifestyle of the dental students. The chi-squared test was used to generate the significance of each question at significance <0.05.

Results: A total of 93 students participated in the study. The findings revealed that 11.8%, 24.71%, 55.9%, and 7.52%, are obese, overweight, normal, and underweight, respectively. The results showed that there is no statistically significant difference (p > 0.05) between the groups was found for the questions asked about time spent exercising per day (p = 0.685).

Conclusion: Improper dietary habits, including high-calorie intake and less exercise, do not mean that the students must be obese or overweight, The changes in daily activities for clinical students was associated with decreased BMI among the students. So, there is a need for intervention programs to increase the awareness of maintaining a healthy lifestyle.

Keywords: caloric activity, dental students, body mass index, steps, and diet.

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INTRODUCTION:

Obesity is excess body fat that has accumulated to the point where it may harm an individual's health. It is known that in developing countries, the percentage of overweight individuals is increasing (WHO, Geneva, 2010). It is an issue resulting in many metabolic changes, including increased blood pressure, increased insulin resistance, type II diabetes, hypertension, and kidney failure. According to (Ng M. et al., 2013), obesity has become a significant public health problem of the 21st century.

Many elements are major risk factors of obesity, such as unhealthy diets, physical inactivity, and lifestyle (Habib et al., 2017). There are different methods to measure obesity, including BMI, waist-hip ratio, body density, computed tomography (CT), fat cell size and number, magnetic resonance imaging (MRI), and many more. (Mei Z. et al., 2002). Studying dentistry is a long process of seven years that requires the student to work from 8 a.m. until 4 p.m. with a one-hour break. Students of different levels have preclinical and clinical courses that need them to exert physical energy.

Laziness eventually leads to the condition of obesity, and to overweight, which is also an increasing factor for global death (Al Hazza HM, 2010). The advantages of regular physical activity (PA) contribute to a long lifespan (Dumith SC, 2011). A strong body of evidence comprising both observational and experimental research indicates that regular participation in PA among young people provides immediate and long-term benefits for physical and psychological well-being (Al-Nozha MM, 2007). As of 2014, Saudi Arabia has become the 19th largest economy in the world, which is one of the fastest-growing economies. In 2015, it was estimated that 90% of the population would be living in the cities of Saudi Arabia (Al-Saeed WY, 2003).

The past few decades have seen many changes, such as increasing urbanization and increased income; as a result, there has been more access to fast food and technology (Ng SW,2011). The shifts in lifestyle and diet pattern as a result of the computer, internet, and television-viewing have led to a fast nutrition transition. It will increase the incidence of obesity and overweight in children, adults, and adolescents in the future (El-Mouzan, 2010). For measuring obesity, there are many different techniques, such as the inexpensive technique of weight and height for BMI, waist-hip ratio, fat cell size and number, body density, bioelectrical impedance, dual-energy X-ray absorptiometry, air displacement plethysmography,

ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) (El-Mouzan, 2012). Depending on the characteristics of the population under the time resource and study available, each method has its advantages and limitations (Horan M,2015). BMI is the most common method used because it can express the degree of overweight reliably and desirably. It is also one of the most widely used processes because the application is easy to use and even simple (Mei Z,2002). Among the dental profession, it is rare to find a study on the prevalence of obesity, dietary habits, PAs, and lifestyles. The purpose of the study is to measure obesity and overweight according to the BMI method and to explore the dietary habits, PAs, and lifestyles among the male dental students at Rivadh Elm University, Riyadh (McTigue KM,2003).

In this study, we will use the BMI calculator due to its ease and manageable application, and calorie-andstep counter watches to track the caloric activity of the students in one typical week of work. Students will also answer a general, pre-validated questionnaire (see appendix). Our primary goal for this study is to measure the prevalence of overweight dental students at Riyadh Elm University, to find out how the disease relates to the students' lifestyle, and if the dental academic lifestyle has any impact on their well-being.

METHODOLOGY:

A pre-validated form, a questionnaire, and Apple watches were used in this study for data collection. First, Apple watches were used to collect data, consisting of the number of calories that every student burned during a specific period. Ninety-three participants volunteered who are preclinical, clinical students, and interns at Riyadh Elm University. The subjects used the watches during five weekdays from 8 a.m. until 4 p.m. and recorded the reading. Then, the students had asked to answer a questionnaire.

The first part of the form was the self-reported height and weight for the BMI. They were grouped into underweight (BMI< 18.5), normal weight (BMI 18.5-29.9), overweight (25-29.9), and obese (BMI >30). The second part comprised questions related to dietary habits, physical activity, and the lifestyle of dental students — finally, the collected data were subjected to statistical analysis using SPSS software.

RESULT:

The participants from all levels at Riyadh Elm University were divided into two general groups, preclinical and clinical students. They used two different brands of step-counting and caloric burner watches: either an Apple watch or Fitbit. After calculating their steps, we found that the clinical students showed more steps than the preclinical students as shown in figure (1), especially on clinical days. This projected an image of the students' BMI because the clinical dental students will burn more calories, which can lead to a lower BMI.

Next, a questionnaire was spread among dental students at Riyadh Elm University. Ninety-three dental students participated and answered the questionnaire. The BMI was calculated for each student to determine the percentages of obese, overweight, normal, and underweight individuals. The result was 11.8%, 24.71%, 55.9%, and 7.52%,

respectively. As shown in table (1). 58.1% of the participating students eat only two meals, and 24.7% of them eat three meals, which was considered in both groups to be enough and normal. The study also measured how many snacks each person consumes every day, and it showed that the majority (46.2% and 29.0 %) consumed only one or two snacks, as shown in table (2) which represents no statistically significant difference (P= 0.935). The results also showed that less than half of the students (49.5%) were exercising or sporting at least once per week (table 3) which represents no statistically significant as well (P= 821). Finally, one question related to the consumption of soft drinks among the students, and the result is that more than the half of the students do not drink any soft drinks at all, as shown in table (4).

Table (1)

Number of meals	One meal	Two meals	Three meals	More than	I don't
per day				three meals	know
UW (%)	14.3%	42.9%	42.9%	0%	0%
NW (%)	11.5%	61.5%	23.1%	3.8%	0%
OW (%)	13.0%	47.8%	30.4%	4.3%	4.3%
Obese (%)	0%	72.7%	7.5%	9.1%	9.1%

Table (2)

Table (2) P= 0.935						
Numberofsnacksperday	One snack	Two snacks	Three snacks	More than three snacks	Other	None / follow a diet
UW (%)	14.3%	42.9%	14.3%	28.6%	0%	0%
NW (%)	48.1%	30.8%	3.8%	3.8%	9.6%	3.8%
OW (%)	56.5%	21.7%	17.4%	0%	0%	4.3%
Obese (%)	36.4%	27.3%	9.1%	9.1%	0%	18.2%

Table (3)						P= 0.821
Exercise per	One time	Two times	Three	More than	Other	None
<u>week</u>			times	three times		
UW (%)	.0%	42.9%	.0%	0%	0%	57.1%
NW (%)	15.4%	7.7%	7.7%	15.4%	1.9%	51.9%
OW (%)	17.4%	4.3%	8.7%	26.1%	0%	43.5%
Obese (%)	9.1%	18.2%	9.1%	18.2%	0%	45.5%

P= 0.667 Table (4) Number of soft **One time** Two times Three times More than Other None 1 drinks per day follow three a times diet UW (%) .0% .0% 28.6% .0% 14.3% 57.1% NW (%) 17.3% 3.8% 0% 1.9% 9.6% 59.6% 34.8% **OW** (%) 4.3% 0% 4.3% 0% 52.2% Obese (%) 9.1% 9.1% 9.1% .0% 0% 54.5%

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DISCUSSION:

This study was done on dental students and has provided information about the relationship between the students' diet, exercise, and how many steps they walk every day with their BMI. The required data were collected using two types of step-counting and caloric burner watches, either an Apple watch and Fitbit and the dissemination of a custom-designed questionnaire. Although there have been many studies about the BMI of the general population, similar studies for dental students are rare. According to the calculation of the steps, an early review of 32studies published between 1980 and 2000 indicated that healthy younger adults (approximately 20-50 years of age) take 7,000-13,000 steps/day, and according to physical activity guidelines, healthy adults typically take between 4,000 and 18,000 steps/day (2011). This constitutes strong evidence that our students are burning many more calories since the total average steps of the clinical students were 28,860, which is also higher than the preclinical students whose average was 23,665. Based on the calculated BMI, the results of this study provide evidence that more than half of the dental students of Riyadh Elm University, Riyadh, Kingdom of Saudi Arabia (KSA) have a normal BMI. Specifically, 7.52% of the students are underweight, 55.9% are normal weight, 24.71% are overweight, and 11.8% are obese. These figures disagree with a study conducted in Riyadh city at King Saud University on male dental students. According to this study, their prevalence of underweight, normal weight, overweight, and obese was 9 (4%), 82 (39%), 61 (29%), and 59 (28%) respectively (Habib, 2017). However, another study was conducted among all the second-year undergraduates of Sri Venkateshwaraa Dental College, Puducherrym. Their students' BMI showed that 21.2% were underweight, 32.9% were normal, 24.7% were overweight, and 21.2% were obese. These results indicate that most of the students have a normal BMI (Radhika, 2018). The high percentage of a normal BMI among the dental students in Riyadh Elm University and the dental college of Sri Venkateshwaraa reflect the changes in behavioral and social patterns of the dental students as compared with the general community.

Dietary habits, including taking their meals at irregular times, reliance on snacks, and eating lunch after 4 p.m. upon returning home have resulted in reducing the students' BMI. Regarding the number of steps: the changes in daily activities for clinical students have several causes. For instance, at our university, the student is responsible for disinfecting his cubicle, bringing the instruments that he will use from the sterilization room, preparing the materials that he needs, and after the treatment, he is responsible for returning them as well. However, regarding physical activity, the results of the study displayed in the following tables clearly show that the percentage who eat two meals is deemed to be high for the normal BMI students as well as for the obese. According to the percentage of those eating out, only 9.6% of normal BMI students do not eat junk food, and 59.6% of them do not consume soft drinks at all, which is an essential factor in high BMI levels. When we looked at the exercise habits of the students, we found that 15.4% of those with a normal BMI exercise once a week. 7.7% twice or three times a week, and most of them exercise for one hour per session. Although 51.9% do not exercise, their physical activities contribute up to 50% of their total daily caloric needs, and therefore, the active person will have a healthier body than an inactive person. Although there has been a significant change in the Saudi people's lifestyle recently, including increased access to fast food and the internet, the physical activities of dental students at our university play a significant role in decreasing their BMI.

To the authors' knowledge, our study is one of the first to discuss lifestyle and daily physical activities and their correlation to BMI among the dental students of Saudi Arabia. It is recommended that health education and information about healthy eating habits and lifestyles be included in the dental school curriculum. It will help our dental students to know the importance of eating healthy foods and doing exercise. Although the current study provided some information, further detailed studies across dental schools all over the country need to be conducted.

CONCLUSION:

The dental academic lifestyle at Riyadh Elm University has contributed to reducing the students' BMI. Dental students who are overweight and obese were found to be physically inactive. The awareness about PA, healthy diet, proper lifestyle choices and the consequences of overweight and obesity on their health must be increased among dental students to avoid future complications.

Limitation:

Accuracy of step watches.

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