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IMPACT OF MEDICAL EDUCATION IN PROMOTING HEALTHY LIFE OF MEDICAL STUDENTS

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Abstract: Education represents an important aspect of public awareness. It is expected that medical education has a great effect in promoting healthy life of medical students. This paper represents a comparison between senior students in faculty of medicine and senior students in non-medical faculty "faculty of business" to find out whether medical education has contributed in improving quality of life of medical students or made no difference. Our questionnaire-based study was conducted on 600 students (300 from each faculty). Dietary habits, healthy habits, Sports and exercise, free time and bad habits were included according to Health Behavior in School-aged Children (HBSC) study protocol questionnaire. Although medical students showed higher level of knowledge about healthy lifestyle, we reported an insignificant difference between lifestyle of medical and non-medical students. Establishment of a behavior towards health-related issues requires more than presence of knowledge. Therefore a complete health programs are needed to raise awareness and encourage behavior development among university students in Egypt.

Keywords: Medical Education, Health behavior, senior students

Introduction

Personal, cognitive and social skills are the keys to understand and use information to enhance and maintain good health. (Nutbeam, 2006). The link between health and education has been under scope for many years. The lifestyle of population can be improved by promoting the lifestyle of the young (Sakamaki et al., 2005). Although, it is expected that the more the health awareness, the better the behavior, Lin et al reported weak correlation between nutritional knowledge and behavior. Moreover it is not necessary that children with better nutrition should have better behavior (Lin et al., 2017). Another literature reflected that changing attitude and behavior cannot be achieved by knowledge only (Schmidt et al., 2010). This questionnaire-based study focused on the relation between education and healthy lifestyle among university students. It aimed to assess effect of medical education on health behavior through a comparison between medical and non-medical students in different health related habits.

Subject and Methods

The study followed Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines during preparation and reporting of this study (Vandenbroucke *et al.*, 2007). A comparative, cross-sectional, questionnaire-based study was conducted in Mansoura University, Egypt. Target group was recruited and data collection was done from February 2017 to April 2017. The final year students registered in Mansoura faculty of medicine and Mansoura faculty of business – English section were included.

Students at any other semester, any other medical, paramedical or non-medical students, students whose study was in Arabic and students who were not registered at Mansoura University were excluded.

A self-administered questionnaire was distributed among target group students. It was available in both online and printed forms in English language. The questionnaire was divided into five sections [dietary habits, healthy

habits, Sports and exercise, free time and bad habits] with a total of 30 questions as shown in [Appendix1]. We used Health Behavior in School-aged Children (HBSC) study protocol questionnaire and a previous questionnaire by Schmidt et al., after obtaining their permission ('HBSC_Study_Protocol_2013-14.pdf', no date; Schmidt *et al.*, 2010).

A convenient sample was collected from the study population. Participants were assured that participation was voluntary and no personal data were required. An oral consent was obtained before filling the printed form. In addition, filling the online form was considered consent from participants. Data were collected using Microsoft Excel and statistically analyzed by (IBM SPSS v.16). Categorical data were analyzed by Pearson chi-square tests in comparison between two groups. p value < 0.05 was considered significant. Missing data was defined as fixed values and handled statistically by SPSS.

Results

A random sample of 300 students in each faculty filled out the questionnaire. One-hundred thirty-three medical students and 68 business students filled the online version, in addition to 167 medical students and 232 business students filled the printed version. Gender was the only the demographic information required. Out of 600 respondents, there were 92 male and 208 female medical students compared to 120 male and 179 female business students. [Table1]

The dietary section was the biggest section in the questionnaire as it included 14 out of 30 questions. In having breakfast in weekdays, most of medical students (61.3%) never have breakfast during the week. This percentage was more than the business students' percentage which was (51.0%) However, during weekends a percentage of (88.6%) medical students had breakfast while among business students the percentage was (77.4%) [Table2].

In eating junk food, the majority in both ate junk food one day or more a week [Table4]. Moreover, (57.7%) of medical students and (47.4%) of business students were overweight and obese [Table4]. In eating food elements like fruits and vegetables, most of students ate those elements at least more than two days a week [Table5,6]. They ate also sweets like candy and chocolate at least two days a week [Table7].

Our results showed that business students consumed more soft drinks than medical students. Highest percentage of soft drinks consumption among business and medical students was more than five days per week (35.6%) and less than once a week (24%) respectively. [Table8].

Only (18.9%) of medical students and (25.3%) of business students reported that they had lunch with their family more than 3 days a week [Table9]. These percentages declined down to (10.1%) of medical students and (18.0%) of business students in having breakfast with family [Table10].

In Sports & exercise, both students showed a low physical activity. Only (16%) of medical students and (16.6%) of business students were doing exercise regularly [Table11]. In joining sport club, business students joined clubs more than medical students by a percentage (21.0%) in comparison with (14.7%) of medical students [Table12].

According to Healthy habits like brushing teeth, it declared that percentage of business students who brushed their teeth more than once a day was (75.8%). However the percentage of medical students was (73.0%) [Table13]. In addition, (52.5%) of medical students and (55.1%) showed that they had dental problem in the last year.

In spending free time, social media like Facebook and twitter had been widely used by both medical and business students. However, the number of business students using them more than four hours a day was much more than medical students [Table14]. In addition, business students were also spending more time than medical students in watching TV [Table 15].

Although, the percentage of medical students smoking was less than those in business students, the number of medical students who started to smoke in college was more than business students [Table16].

Discussion

Education represents an important factor in development of societies; however it is insufficient alone for changing the attitude of students. The study used the medical education as an example and studied its effect on medical students, through a comparison between medical students and business students in their health related habits. Our present study showed no difference between lifestyle of medical and business students, however, medical students' knowledge about ways of healthy lifestyle and the harm of bad habits was higher. Thus, the study suggests that knowledge only was not enough to change attitude and behavior.

Many studies have focused on the quality of life of university students. They reported negative correlation between effects of university life and their habits. Percentage of adolescents doing exercise regularly decreased after they enrolled in college as 70% when they were 12-year-old compared to 42% only at the age of 21-year-old (Tiggemann and Williamson, 2000).

Dietary habits of students in US universities were unpleasant. They consumed a little amount of fruits and vegetables but huge amounts of junk food (Silliman, Rodas-fortier and Neyman, 2004). In addition 32.9% of American college students are either overweight or obese , according to the American College Health Association (2007) (American College Health Association, 2008). the results were very similar. For example, both medical and business students ate junk food heavily. This could be due to spending a lot of time in university and the easy availability of fast food. Nevertheless, medical students had higher knowledge about the harmful effects of high fat food, they showed higher consumption of fast food than business students. Medical education indicated good impact on spending free time. Most of medical students showed that they spent a little time on social media, watching videos or playing games. This could be explained by the nature of their study life.

To the best of our knowledge we did not find much literature comparing between medical and non-medical student. Moreover, the study compared in five different aspects which represent almost all of the students' habits. One of the study limitations was the small size of the sample. In addition, the study was held on two faculties only. Another limitation was that there was no assessment to check duplicated responses in the questionnaire online and printed versions.

Thus, the study encourages further studies to focus on relation between level of education and healthy lifestyle with larger sample size and broad inclusion criteria. As changing the adults' behavior starts from changing the students' behavior, also recommends that universities should help their students to have a healthy life by increasing their behavior-changing awareness. There should be programs and courses beside their study curriculum helping them to change their attitudes and behavior.

In conclusion, the study reported an insignificant difference between lifestyle of medical and non-medical students, however medical students had higher level of knowledge about healthy lifestyle. Knowledge alone is not sufficient for changing behavior towards health-related issues, thus a complete health programs are needed to raise awareness and encourage behavior change among university students in Egypt.

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Conflict of interest

All authors confirm no financial or personal relationship with a third party whose interests could be positively or negatively influenced by the article's content.

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Table 1Gender:

Gender	Medicine (n=300)	Business (n=300)
Male	92 (30.7 %)	120(40.1%)
Female	208 (69.3%)	179(59.9%)
Missing data	0(0.0%)	1 (0.9%)

Table 2Having breakfast in weekdays &weekends:

Breakfast	Medicine (n=300)	Business (n=300)
Weekdays		
Never	184 (61.3%)	149 (49.7%)
One day	24 (8%)	23 (7.6%)
Two days	24 (8%)	42 (14.0%)
Three days & more	68 (22.7%)	78 (26.0%)
missing data	0(0.0%)	8 (2.7%)
Weekends		
Never	34 (11.3%)	66 (22.0%)
Usually	263 (87.7%)	224 (74.7%)
Missing	3(1.0%)	10(3.3%)

The breakfast in weekdays, the X2 was (9.188) ,df (3) with p-value (.027) .thebreakfast in weekends, theX2 was (13.282), df (1) with p-value (.000).

Table 3Eating junk food in weekdays &weekends:

Junk food	Medicine (n=300)	Business (n=300)
Weekdays		
Never	50 (16.7%)	60 (20.0%)
One day	102 (34.0%)	76 (25.3%)
Two days	49 (16.3%)	55 (18.3%)
Three days	44 (14.7%)	45 (15.0%)
Four days	25 (8.3%)	22 (7.3%)
Five days	29 (9.7%)	37 (12.3%)
Missing data	1(0.3%)	5(1.8%)
Weekends		
Never	219 (73%)	174 (58%)
Usually	76 (25.3%)	101 (33.7%)
Missing data	5(1.7%)	25(8.3%)

the X^2 was (6.199) , df (5) with p- value (.287).

Table 4 Body Mass Index:

BMI	Medicine(n=300)	Business (n=300)
<18	8 (2.7%)	11 (3.7%)
18-24	147(49%)	161 (53.7%)
25-30	85 (28.3%)	80 (26.6%)
>30	28 (9.3%)	18 (6%)
Missing data	32(10.7%)	30(10%)

Table 5 Eating Fruits:

Fruits	Medicine (n=300)	Business (n=300)
Never	4 (1.3%)	2 (0.7%)
Less than once a week	8 (2.7%)	15 (5%)
Once a week	55 (18.3%)	38 (12.6%)
About 2-4 days a week	102 (34%)	108 (36%)
More than 5 days	130 (43.3%)	132 (44%)
Missing data	1(0.3%)	5(1.7%)

The X^2 was (6.065), df (4) with p-value (0.194).

Table6 Eating vegetables

Vegetables	Medicine (n=300)	Business (n=300)
Never	5 (1.7%)	8 (2.7%)
Less than once a week	9 (3.0%)	16 (5.3%)
Once a week	53 (17.7%)	44 (14.7%)
About 2-4 days a week	81 (27%)	73 (24.3%)
More than 5 days	151 (50.3%)	154 (51.3%)
Missing data	1(0.3%)	5(1.7%)

Table 7Eating Sweets:

Sweets	Medicine (n=300)	Business (n=300)
Never	7 (2.3%)	18 (6%)
Less than once a week	61 (20.3%)	65 (21.7%)
Once a week	71(23.7%)	56 (18.7%)
About 2-4 days a week	94 (31.3%)	80 (26.7%)
More than 5 days	65(21.7%)	76 (25.3%)
Missing data	2(0.7%)	5(1.6%)

Table 8 Soft Drinks

Soft Drinks	Medicine (n=300)	Business (n=300)
Never	38 (12.7%)	39 (13%)
Less than once a week	72 (24%)	56 (18.7%)
Once a week	63 (21%)	38 (12.7%)
About 2-4 days a week	59 (19.7%)	54 (18%)
More than 5 days	66 (22%)	107 (35.6%)
Missing data	2(0.7%)	6(2%)

Table 9 Having lunch with family: Soft drinks like coke

Lunch	Medicine (n=300)	Business (n=300)
Never	106 (35.3%)	108 (36%)
Less than once a week	53 (17.7%)	44 (14.7%)
1-2 days a week	82 (27.3%)	67 (22.3%)
More than 3 days a week	56 (18.7%)	74 (24.7%)
Missing data	3(1%)	7(2.3%)

Table 10 Having breakfast With family"

Breakfast	Medicine (n=300)	Business (n=300)
Never	96 (32%)	88 (29.3%)
Less than once a week	90 (30%)	52 (17.3%)
1-2 days a week	82 (27.3%)	101 (33.7%)
More than 3 days a week	30 (10%)	53 (17.7%)
Missing data	2(0.7%)	6(2%)

Table11 Exercise in weekdays:

Exercise	Medicine (n=300)	Business (n=300)
4-7 days a week	48 (16.0%)	49 (16.3%)
1-3 days a week	115 (38.3%)	103 (34.3%)
Once or less a month	55 (18.3%)	51 (17%)
Never	82 (27.3%)	92 (30.7%)
Missing data	0(0%)	5(1.7%)

Table 12 Joining sports club:

Join a sport club	Medicine (n=300)	Business (n=300)
Yes	44 (14.7%)	62 (20.7%)
No	256 (85.3%)	233 (77.6%)
Missing data	0(0%)	5(1.7%)

Table 13 Brushing teeth:

Brushing teeth	Medicine (n=300)	Business (n=300)
More than once a day	219 (73.0%)	225 (75%)
Once a week or less	76 (25.3%)	57 (19%)
Never	5 (1.7%)	15 (5%)
Missing data	0(0%)	3(1%)

Table 14 spending free time in social media:

The X^2 was (7.780), df (2), p-value (0.020). Social media	Medicine (n=300)	Business (n=300)
Never	2 (0.7%)	5 (1.7%)
Half an hour to one hour a day	62 (20.7%)	48 (16%)
Two hours a day	76 (25.3%)	54 (18%)
Three hours a day	61 (20.3%)	40 (13.3%)
Four hours a day or more	98 (32.7%)	150 (50%)
Missing data	1(0.3%)	3(1%)

Table 15 Watching TV:

Watching TV	Medicine (n=300)	Business (n=300)
Never	13 (4.3%)	12 (4.0%)
Half an hour – three hours a day	151 (50.3%)	117 (39%)
Four hours or more a day	136 (45.3%)	168 (56%)
Missing data	0(0%)	3(1%)

Table16 Smoking cigarettes

Smoking	Medicine (n=300)	Commerce (n=300)
Never	286 (95.4%)	274 (91.3%)
19	2 (0.7%)	14 (4.7%)
20	3 (1.0%)	5 (1.7%)
21	1 (0.3%)	4 (1.3%)
22	3 (1.0%)	0 (.0%)
23	4 (1.3%)	0 (.0%)
Missing data	1(0.3%)	3(1%)

Q1 What is your Gender ?

- ☐ Male
- ☐ Female

Q2 what is your Faculty ?

- ☐ Medicine
- ☐ Commerce

Q3 How often do you have breakfast (junk food not included) ?
Please tick one box for Weekdays and one box for Weekend

Weekdays	**Weekends**
☐ I never have breakfast during the week	☐ I never have breakfast during the weekend
☐ One day	
☐ Two days	
☐ Three days	
☐ Four days	☐ I usually have breakfast during the weekend
☐ Five days	

Q4 How often do you eat junk food ?
Please tick one box for Weekdays and one box for Weekend

Weekdays	Weekends
☐ I never have junk food during the week	☐ I never have junk food during the weekend
☐ One day	
☐ Two days	
☐ Three days	

☐ Four days ☐ Five days	☐ I usually have junk food during the weekend

Q5 How many times a week do you usually eat or drink … ?

	Never	**Less than once a week**	**Once a week**	**About 2-4 days a week**	**About 5-6 days a week**	**Once a day , every day**	Every day , more than once
Fruits	☐	☐	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐	☐	☐
Sweets (candy or chocolate)	☐	☐	☐	☐	☐	☐	☐
Coke or other soft drinks that contain sugar	☐	☐	☐	☐	☐	☐	☐

Q6 How often do you do the following? Please tick one box for each line

	Never	Less than once a week	1-2 days a week	3-4 days a week	5-6 days a week	Every day
Have an evening meal together with your mother or father	☐	☐	☐	☐	☐	☐
Have breakfast together with your mother or father	☐	☐	☐	☐	☐	☐

Q7How much do you weigh without clothes?

Q8 How tall are you without shoes?

Q9 How often do you brush your teeth?

- re than once a day
- Once a day
- At least once a week but not daily
- Less than once a week
- Never

Q10 Did you have dental problem in the last year ?

- s
- No

Q11 Outside university hours: how often do you usually exercise in your free time ?

- Every day
- 4-6 times a week
- 2-3 times a week
- Once a week
- Once a month
- Less than once a month
- Never

Q12 Are you a member at sport club or a gym?

Yes	☐
No	☐

Q13 How many hours a day, in your free time , do you usually spend watching TV , videos (including YouTube or similar service) ,DVD , and other entertainment on a screen ? Please tick one box for weekdays and one box for weekend .

Weekdays	**Weekends**
☐ None at all	☐ None at all
☐ About half an hour a day	☐ About half an hour a day
☐ About an hour a day	☐ About an hour a day
About 2 hours a day ☐	About 2 hours a day ☐
About 3 hours a day ☐	About 3 hours a day ☐
About 4 hours a day or more ☐	About 4 hours a day or more ☐

Q14 How many hours a day, in your free time , do you usually spend on social media (Facebook , twitter , instgram , etc) ? Please tick one box for weekdays and one box for weekend .

Weekdays	Weekends
☐ None at all	☐ None at all
☐ About half an hour a day	☐ About half an hour a day
☐ About an hour a day	☐ About an hour a day
☐ About 2 hours a day	☐ About 2 hours a day
☐ About 3 hours a day	☐ About 3 hours a day
☐ About 4 hours a day or more	☐ About 4 hours a day or more

Q15 At what age did you first smoke a cigarette (more than a puff) if you never have smoked a cigarette, choose the never category

- ☐ Never
- ☐ 19 years old or less
- ☐ years old
- ☐ 21 years old
- 22 years old ☐
- 23 years old ☐
- 24 years old ☐
- 25 years old ☐