

The Effect of Social Network Sites on Medical Students' Social and Academic Behavior

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Abstract:

Background: Modern technology has made a radical change in our life. The internet is one form of that technology that invades our life with its applications. Variant social media has become an essential part of our daily routine. **Objectives:** This study aims to map social media usage among medical students and describe the relationship between social networking sites and social and academic behavior. **Method:** A Cohort prospective study using a predesigned paper-based, pilot-tested, and self-administered questionnaire. The study was conducted in the academic year 2018-2019 on the fourth-year medical students in the faculty of medicine at Menoufia University. A total of 211 fourth grade medical students were randomly selected. **Results:** The average time spent on the internet is 4 - 6 hours daily mainly for communication. There was a high statistically significant relation between internet browsing generally and Social media specifically and the score of the behavior changes. There were high scores of students' behavior accompanying the high use ($P < 0.001$). **Conclusion:** Social channels are widely used, and they influence the behavior of their users. So, we recommend further studies to determine the type of affected behavior.

Keywords: Effect on Behavior, Social Network Use, Medical Students

Introduction:

Based on some definitions, social media are platforms that allow people to express themselves and get to know someone with the same interests. In addition to making new friendships, it could be said that social media are virtual communities that allow their users to share ideas and interests, i.e., it is a technology that is used to display personal creativity or exchange knowledge, ideas, Business interests, or knowledge among different groups through different methods of communication, and the whole world understands that even the decision-makers themselves know that this information is relevant. ⁽¹⁾

McGowan and colleagues described social media as websites and applications that use the online platform as contextual environments in which users contribute, retrieve and explore content created primarily by fellow users. ⁽²⁾

Social media has spread rapidly recently. A study conducted in the United States found that 84% of adolescents in the United States only use Facebook, ⁽³⁾ and another study found that 60% of the 13-17 age group use social media at least 2 hours/day, some even identified it as addiction. ⁽⁴⁾ Social media is also used in the recruitment and growth of human skills. ⁽⁵⁾ Social media varies from conventional methods of transmitting quality information, ⁽⁶⁾ differing sources, and speed of distribution to the user. ⁽⁷⁾

Behavior is commonly characterized as a set of actions performed by the individual to satisfy his everyday needs and desires, either on the external or internal level. And at the conscious and subconscious level, it can be perceptively carried out with control or unperceptively without control. ⁽⁸⁾ To detect the characters and capacities of individuals, actions should be observed. ⁽⁵⁾ The forms of behavior vary over

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time and are controlled by multiple factors, including genetic, cultural, and religious factors, which are being studied in many experimental studies. ^(9,10)

The time spent on health-related habits and social relationships is now replaced by social media. ⁽¹¹⁾ This affects the offline behavioral problems of its users, such as identity, peer relationships, and self-expression. ⁽¹²⁾

Social media has an obvious role to play in increasing the vulnerability of peer effect mechanisms to risky activities such as drug use or risky sexual behavior ⁽¹³⁾. It is also associated with violence-related behavior ⁽¹⁴⁾ because it has some negative effects such as depressive symptoms, it can affect the mental health of university students. The association between social media use and the non-suicidal self-injury and suicidal behavior of university students has been studied.

Medical students are diagnosed with different symptoms at family health clinics, ranging from simple complaints to depressive symptoms or psychiatric disorders. Parents are generally concerned about their adolescents, in addition to the reported academic achievement deficiency, wellbeing. The understanding of family doctors about the relation between social media and behavioral changes is therefore important.

With our best literature review, the authors did not find studies evaluate the impact of social media on human behavior in different countries in general and the Arab ones in particular. Our

study, therefore, aims at describing the pattern of use of social media among medical students and identifying the relationship between social media and the changes in the social and academic behavior of students.

Methods:

The protocol was approved by the ethical committee in Menoufia medical school. Informed written consent was obtained from all the participants. A prospective paired cohort study was conducted on the 4th year medical students at the beginning and the end of the academic year 2018-2019.

The fourth-year academic students were chosen to participate as it is the first year in the clinical phase where there is a change in their lifestyle to deal with hospital rotation besides using the internet as a mandatory aspect in the formative exams and learning management system.

A predesigned questionnaire composed of three parts was used; the first one was to assess the student's socio-economic level through a valid reliable questionnaire composed of nine questions. ⁽¹⁵⁾ The second part was for mapping of social media use through five questions about the pattern of internet use in terms of the hours spent on it, different applications for social media use, duration, and purpose of using & the frequency of logging in. And finally, the third part was used to assess the change in behavior through a modified Behavioral Change Questionnaire (BCQ) ⁽¹⁶⁾ which is composed of 17 questions about the social and academic

behavior of students. The questions responses were are on a five Likert scale. The mean score of the questionnaire was used (based on the normal distribution of the score between the participants) to classify the change of behavior into non-significant and significant change (below and above the mean respectively). The questionnaire was translated into Arabic and checked for validity and reliability (Cronbach's Alpha (0.7)) through the pilot study.

A prospective paired cohort study was conducted on the 4th year medical students at the beginning and the end of the academic year 2018-2019. A pilot study on 30 participants selected randomly was conducted to calculate the sample size based on the percent of significant change in behavior of the students and to assess the questionnaire adequacy. Then the questionnaire was introduced to medical students after excluding those involved in the pilot study due to the changes made in the survey.

The sample size was calculated using Epi-Cal 2000 assuming that the power of the study is 95%, 0.05 level of significance, and the percent of significant behavior change was 40% from the total population (450). A sample size of 177 medical students was calculated and increased to 213 to overcome the 20% dropout. Subjects are chosen by a simple random sampling technique. A total of 211 subjects were exposed to the final version of the survey after the dropout of 2 students. The data was collected in two weeks during October 2018 and then

recollected from the same students during July 2019.

An email was sent to take appointments with the students then they received a written questionnaire in a closed room without any interference by any of the data collectors and before their answers, they got an illustration for all questions. To keep the privacy, the names were replaced by self-generated codes representing every subject with the allowance of any subject to quit the study.

Data management: Data were collected, tabulated, and statistically analyzed using IBM personal computer with Statistical Package for Social Science (SPSS) version 22 (SPSS Inc., Chicago, IL, USA). Qualitative data were presented as a percentage and analyzed using the chi-squared test for non-paired variables and McNemar test for paired variables. Quantitative data were presented as mean, standard deviation (SD), and analyzed using paired t-test for parametric paired data and Wilcoxon test for non-parametric paired variables. Pearson coefficient was used for analyzing the correlation. Binary multivariable logistic regression was used to evaluate the most evident factors related to the social media pattern of use affecting the students` behavior. Statistical significance was determined to be less than 0.05.

Results:

The age of the participants was 22 years old (22.2±0.6) with 76.8% in urban areas. About

60% were of intermediate socioeconomic level and 40% was of high level. There was no statistically significant difference in behavior change among the medical students as regards their socioeconomic characteristics (table 1).

The most used social media applications were Facebook (100%), YouTube by 56.4%, and Twitter by 53.1%. (figure 1)

There was a statistically significant difference in the behavior of the students as regards all items of the questionnaire and the overall score on comparing the change of behavior at the beginning and the end of the academic year (p value<0.001) (table 2)

Using social media for communication was the only statistically significant reason for using these sites among the participants who had significant behavior change (p-value <0.001). (Table 3)

There was a statistically significant positive correlation between behavioral change (BC) score and the hours spent on social media daily (p-value =0.004) and the frequency of logging in daily (p-value <0.001) among the medical students at the end of the academic year (Table 4) where a behavioral change was occurring with more hours spent and frequent logging in.

It was found that using social media for communication was the most affecting factor on the behavioral change among the medical students (OR= 5.2) (Table 5).

Discussion:

In the current study, Facebook was the highly used application by all students included in the

study followed by YouTube and Twitter. This is the same as a study conducted in Saudi Arabia showing that the most common site used by students was Facebook representing 53%, while Twitter was in the second rank 35.6%.⁽¹⁷⁾ Also, a study conducted in Pakistan⁽¹⁸⁾ stated that 64% of the medical students use Facebook daily.

There was a statistically significant difference between the student behavior score as regards their pattern for using social media in terms of hours spent daily on social media (mean of 5.8 with 2.2 standard deviation). This is consistent with the study of Aljabry et al. and Abbas et al. which found that the average time for usage of social media was 6 hours.^(19,20)

Medical students in this study used social media mainly as a tool for communication which made a statistical difference in the change of their behavior. This result was similar to a study conducted in Nigeria which stated that using social media for communication had significantly changed the behavior of the students.⁽²¹⁾ This Sheds the light on the strength of peer effect on students at this age and raises an important point in how to make use of it a positive way.

The current study found that there was a statistically significant positive correlation between behavioral change (BC) score and the frequency of logging in daily (p-value <0.001) among the medical students at the end of the academic year which is consistent with a study conducted in Lock Haven University, showing

that the more the frequency of Facebook use the more the student's social behavior change. ⁽²²⁾

On analyzing the effect of social media use on the behavior of the participants, the study concluded that there is a statistically significant relationship between the behavioral changes and using social media especially Facebook in the items of the hours spent on the internet and frequency of logging. This is similar to a study conducted in Turkey declaring that human communication and interpersonal relationships are influenced by social media and Facebook. ⁽²³⁾ Other studies focused on the relationship between behavior change and the use of social media, it came to find that the more people used social media for communication the more they are susceptible to change in their social behavior and become more prone to depression. ^(24,25) This could be explained by the impact of social media on isolating individuals in closed communities being pertinent to all activities of our life.

The study revealed that using social media for communication was the only considerable influencing factor on the change of the students` behavior which coincides with Njoroge,2013 who described a case study of the impacts of social media among the youth on behavior change in Nairobi, Kenya and found that it was evident that social media played a major role on behavior change of the respondents. ⁽²⁶⁾

Strengths and Limitations: The strength of our study is that it discussed a subject was not discussed before in Egypt which is the purpose of using social media among medical students,

especially at the transitional level from academic to clinical education level. The study will help to detect points that should be changed in the medical students' lifestyles, especially in dealing with social media. Also, it links one of the main indirect causes of adolescent presentation to the primary care clinics. While the limitation of this study is that it needs to be applied in multiple universities including different academic years.

Additionally, some confounders affect the behavior change among medical students that were not discussed within this study such as curriculum content and assessment methods. So, more studies are required to analyze their effect on the change in the students` behavior.

Conclusions and Recommendation: It was found that social media use in communication, gaming, and collecting information is higher than their use for academic purposes. Also, it was found that the more the use of social media the more the score of the behavioral changes. Social media use for communication has a great impact on medical students` behavior. More studies are recommended to define social media challenges, how to face them, and direct the pattern of their use for academic purposes.

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Table (1): A Comparison between the Behavioral Change among the Participants as Regards their Sociodemographic Data of the Studied Group

Behavioral change	Insignificant	Significant	Total	X2	P-value
	93 (44.1)	118(55.9)	211		
Age (mean±SD)	22.1±0.6	22.3±0.5	22.2±0.6	2.1	0.6
Gender:					
▪ female	62(66.7)	75(63.6)	137(64.9)	0.2	0.7
▪ male	31(33.3)	43(36.4)	74(35.1)		
Residence:					
▪ Rural	22(23.7)	27(22.9)	49(23.2)	0.1	0.9
▪ Urban	71(76.3)	91(77.1)	162(76.8)		
Socioeconomic score					
▪ Low	0	0	0	0.4	0.6
▪ Intermediate	58(62.4)	68(57.6)	126		
▪ High	35(37.6)	50(42.4)	85		

Table (2): A Comparison of the Behavioral Change Scores between the Beginning and the End of the Academic Year

▪ Total (211)	At the beginning	At the end	Wilcoxon test	P-value
▪ Wagging faculty	1.6±0.7	2.3±1.1	9.9	<0.001
▪ Skipping classes	2.3±0.8	2.8±1.2	7.3	<0.001
▪ Refusing to attend faculty	1.8±0.9	2.8±1.1	10.3	<0.001
▪ Anger and aggression at faculty	1.9±1.1	2.4±1.3	7.9	<0.001
▪ Not following teacher's directions	1.9±1.04	2.6±1.4	7.6	<0.001
▪ Refusing to do work in lessons	1.6±0.9	2.5±1.3	9.9	<0.001
▪ Leaving classes early	1.6±0.8	2.2±1.2	7.5	<0.001
▪ Not doing homework	1.6±0.9	2.4±1.3	10.3	<0.001
▪ Swearing at other students or the teacher	1.4±0.8	2.2±1.2	9.3	<0.001
▪ Giving up when work gets hard	1.8±1.2	2.4±1.3	8.1	<0.001
▪ Bullying other students	1.4±0.9	2.3±1.3	8.4	<0.001
▪ Using Facebook during lessons	1.9±1.1	2.8±1.3	9.6	<0.001
▪ Coming to faculty really tired	2.2±1.5	2.9±1.4	6.2	<0.001
▪ Avoiding work in lessons	1.5±0.9	2.3±1.2	10.1	<0.001
▪ Zoning out or daydreaming in lessons	2.3±1.4	2.7±1.4	5.6	<0.001
▪ Causing fights between other students	1.4±0.9	2.5±1.4	10.5	<0.001
▪ Not trying new faculty work if it looks hard	1.8±1.2	2.6±1.4	8.3	<0.001
▪ Total score (mean± SD)	30.07±7.02	42.5±6.7	31.9*	<0.001

*paired t-test

Table (3): Difference in the Score of Behavioral Change Regarding the Purpose of Social Media Use at the End of the Academic Year

	Insignificant	Significant	X2	P-value	OR (95% CI)
The purpose for use:					
▪ Communication	52(59.1)	36(40.9)	13.1	<0.001	2.9(1.6-5.1)
▪ Gathering information	61(42.1)	84(57.9)	0.8	0.2	1.2(0.8-1.6)
▪ Chatting with friend	67(44.7)	83(55.3)	0.07	0.9	0.9(0.7-1.3)
▪ Studying	59(42.8)	79(57.2)	0.3	0.3	1.1(0.8-1.5)
▪ Playing games	60(42.6)	81(57.4)	0.4	0.3	1.2 (0.7-2.1)

Table (4): Correlation between Behavioral Change (BC) Score and the Hours Spent on the Internet, and Frequency of Logging in Daily at the End of the Academic Year

	R	P-value
▪ Hours	0.19	0.004
▪ Frequency	0.31	<0.001

Table (5): Binary Logistic Regression for Social Media Related Factors Affecting Behavioral Change at the End of the Academic Year

	B	Exp(B)	CI	P-value
▪ Use for communication	0.66	5.2	1.8-7.3	0.02
▪ Hours spent on the internet:	0.7	0.9	0.9-1.2	0.9
▪ Frequency of logging in	0.02	1.1	0.9-1.1	0.4

Chi-square = 5.3 p-value= 0.003

-2 log likelihood= 8.7 , cox&snell R²= 0.67 , Nagelkerke R²=0.71

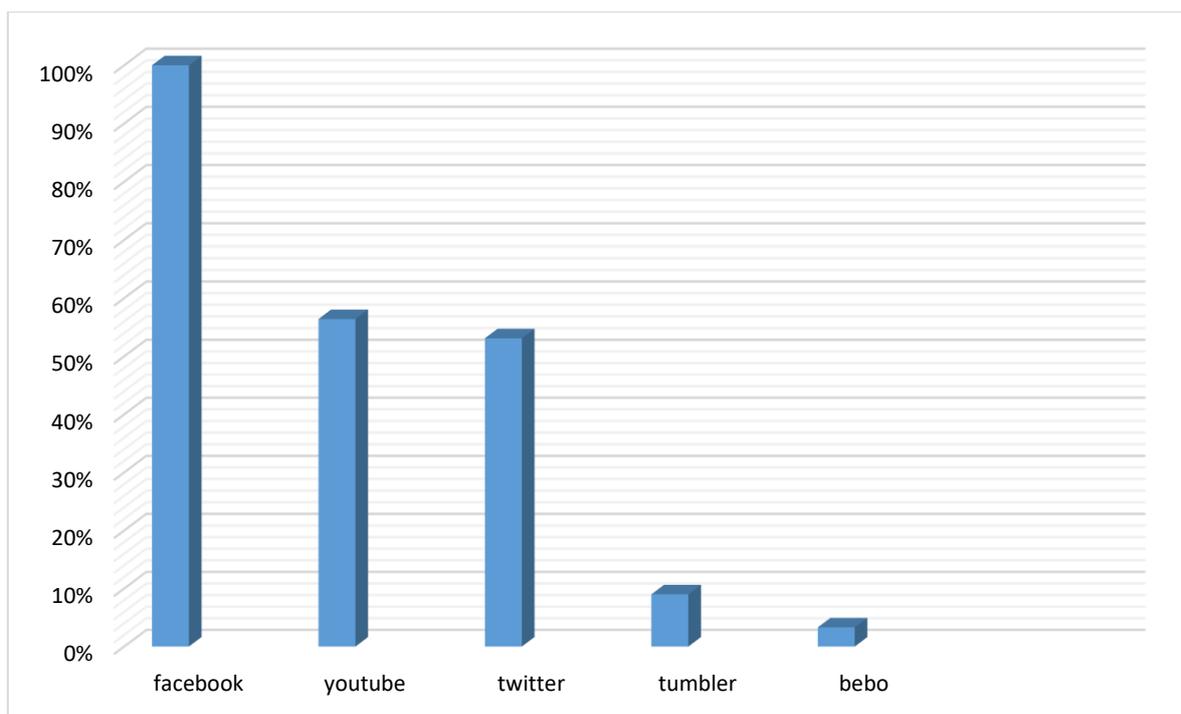


Figure (1): Frequency of Use of Different Social Media

الملخص العربي

تأثير وسائل التواصل الاجتماعي علي السلوك الاجتماعي و الاكاديمي لطلاب الطب

نجوي نشأت حجازي - محمد عادل درة - مروة محمد محسب

الخلفية: لقد قامت التكنولوجيا الحديثة بأحداث تغيير جذري في حياتنا و الانترنت يعد واحد من هذه الوسائل التي اقتحمت حياتنا من خلال تطبيقاتها المختلفة حيث أصبحت وسائل التواصل الاجتماعي جزء اصيل من نظام حياتنا اليومي **الهدف:** تهدف الدراسة الي وصف استخدام وسائل التواصل الاجتماعي بين طلاب الطب و وصف العلاقة بينها و بين السلوك الاجتماعي و الاكاديمي. **طرق البحث:** تضمنت دراسة طولية 211 طالب تم اختيارهم بشكل عشوائي تم جمع البيانات باستخدام استبيان من ثلاثة اجزاء تم توزيعه بين طلاب الفرقة الرابعة بكلية طب المنوفية خلال العام الاكاديمي 2018-2019. **النتائج:** ان الوقت الذي تم قضاؤه علي الانترنت كان بمعدل اربع الي ست ساعات يوميا للتواصل و قد كان هناك علاقة احصائية قوية بين استخدام الانترنت عامة و وسائل التواصل الاجتماعي خاصة و بين تغير السلوك **الخلاصة:** تستخدم وسائل التواصل الاجتماعي بشكل كبير مما يؤثر علي سلوك المستخدمين. **التوصيات:** نوصي باجراء دراسات اخري لتحديد نوعية التغير في السلوك الناتج عن استخدام وسائل التواصل الاجتماعي.