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The impact of social media on the academic performance of second-year medical students at a public sector medical college in Pakistan

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Abstract---Background and aim: The students are using a lot of social media in recent times which was not the case in old times. The excessive use of social media may have an impact on the annual academic performance of the students. We studied the impact of social media on academic performance. Methodology: A cross-sectional study was conducted among second-year medical students at a public sector medical college in Pakistan from 5th June 2022 till 5th July 2022. Informed consent was taken, and a validated questionnaire was designed to collect data and was hosted in Google Forms to allow students to fill out the questionnaire. Results: The Mean $\pm$ SD of the marks secured by the students in anatomy was

135±14.5, the average cumulative marks of students in physiology were 142±12.3, in biochemistry, the average cumulative marks were 154±13.1 and the mean of the total marks secured by the students in their first Professional examination was 431±33.4. Regarding grade distribution, in anatomy the median of the grades was 2.5±1.0, in physiology, the cumulative grade of students was 3.0±1.0, the cumulative grade of students in Biochemistry was 3.5±0.7. The combined grades of students for all the subjects were 3.0±1.0. Conclusion: The use of social media has no impact on the academic grades of students.

Keywords---impact, social media, academic grades.

Introduction

Of the various elements fundamental to human existence, one is communication and interaction with fellow beings. This communication and interaction demand various means which have continually been evolving since the advent of human life on earth. Their forms and names have been changed but their objective today is the same as what it was centuries ago. The means of communication used today are termed social media the word social media is used for a group of applications that allow users to build their profiles, display their work and interests, convey their viewpoints, and interact with a whole community of social media users. The disparity between the means of communication used in the past and social media is that those means were very energy-consuming and time taking, and so they were used mainly for important matters and barely for pleasure, but social media today has made communication so convenient and desirable that it has started impeding our lives to a much greater extent. People have started spending a substantial proportion of time on social media and the amount of time being spent on these applications has been increasing consistently (1). This massive influence of social media on our lives has resulted in both good and bad outcomes. Over the past 15 years, research on social media usage and its impact on our lives has sprouted tremendously with both positive and negative results (2) Yet more research is to be done to have the final say on this matter.

Social media has revolutionized our lives. As it has impacted every aspect of our lives, its impact on academic performance is also of great importance. The effect of social media usage on academic performance is also a hot topic of research. Some studies show a negative correlation between social media usage and academic outcome, arguing that social media consumes a great deal of students' time and hence their academic performance suffers (3, 4). These studies emphasize that students spend more time entertaining themselves through social media platforms rather than using them for academic benefits. Furthermore, social media usage causes addiction which makes it difficult for students to let go of the fun and study (3). While on the other hand, we have studies that show a positive correlation between social media usage and academic outcome (5, 6). These studies emphasized the academic benefits that social media applications have offered, many online learning tools are available now to boost productivity;

collecting information regarding any topic has become easier; online lectures and tutorials are just one click away; all these features help students perform better in their studies.

Our study aims to find the correlation between social media usage and its influence on the grades of second-year medical students. Studies regarding this have been done in the past with highly mixed results, some showing a positive while others showing a negative correlation. This implies that further studies are required to bridge the gap and reach a final and satisfactory answer. Some studies showing a positive correlation are solely based on students' opinions and do not consider the grades or GPA of students. Our study not only considers students' opinions regarding social media's influence on their lives but also considers their grades to better analyze the situation and reach a satisfactory conclusion.

Materials and Methods

A cross-sectional study was conducted among 2nd-year medical students at Sahiwal Medical College Sahiwal in Pakistan from 5th June 2022 till 5th July 2022 in the mid of the academic year 2022-23. A questionnaire was designed for the current study to collect data and was hosted in Google Forms to allow students to fill out the questionnaire online using computers, mobile phones, or tablets. The questionnaire comprised 14 questions, mostly multiple-choice, with some open-ended questions. Multiple choice questions allowed students to pick answers from the list like positive, negative, or no effect of social media on their performance in class tests and annual professional exams. Open-ended on the other hand allowed students to independently express their opinions. The students were also asked to provide total marks out of 600 in the annual professional exam and the marks in individual subjects i.e., anatomy, physiology, and biochemistry (each out of 200) to correlate time spent on social media with students' academic performance. The sample size was 66 as calculated from the formula.

$$N = z^2\alpha/2 \times p \times (1-p) \times \text{DEFF}/d^2$$

Where $\alpha=0.05$, $p=0.57$, DEFF , $d=0.12$

While 85 samples were collected. Only 2nd-year medical students were included in the study. Those not willing to participate and students who submitted incomplete questionnaires were excluded.

Results

The Mean $\pm$ SD of the marks secured by the students in anatomy was 135 ± 14.5 , the average cumulative marks of students in physiology were 142 ± 12.3 , in biochemistry, the average cumulative marks were 154 ± 13.1 and the mean of the total marks secured by the students in their first Professional examination was 431 ± 33.4 . Regarding grade distribution, in anatomy the median of the grades was 2.5 ± 1.0 , in physiology, the cumulative grade of students was 3.0 ± 1.0 , the cumulative grade of students in Biochemistry was 3.5 ± 0.7 . The combined grades of students for all the subjects were 3.0 ± 1.0

Tables

Table 1: Demographic Information

Variables	Frequency	Percentage
Gender		
• Male	42	47.7
• Female	46	52.3
Total	88	100.0
Ethnicity		
• Punjabi	67	76.1
• Sindhi	1	1.1
• Balochi	5	5.7
• Pakhtoon	6	6.8
• Gilgit Baltistan	3	3.4
• Other	6	6.8
Total	88	100.0
Residence		
• Hostel lite	72	81.8
• Day scholars	16	18.2
Total	88	100.0

Table 2: Frequency distributions of different applications usage along with their timings

Variables	Frequency	Percentage
Mostly used applications.		
• WhatsApp	35	39.8
• Facebook	21	23.9
• Instagram	15	17.0
• YouTube	14	15.9
• Twitter	3	3.4
Total	88	100.0
Time/day for use of social media		
• Less than 2 hours	10	11.4
• 2-6 hours	53	60.2
• More than 6 hours	25	28.4
Total	88	100.0
Do you deactivate social media before exams?		
• Yes	23	26.1
• No	65	73.9
Total	88	100.0

Table 3: Comparison of grades with the duration of usage of social media apps

Grades	Less than 2 hrs.	2-6 hours	More than 6 hrs.	p-value*
Anatomy	2.5 ± 0.75	1.5 ± 0.25	3.5 ± 0.5	0.506
Physiology	2.75 ± 0.63	2.0 ± 1.5	3.6 ± 0.25	0.606
Biochemistry	3.5 ± 1.0	3.25 ± 1.5	3.5 ± 1.0	0.792
Total	3.0 ± 0.5	0.25 ± 1.5	3.37 ± 0.75	0.864

*Calculated by Kruskal-Walis Test

Table 4: Distribution of overall grades with the use of social media applications

Grades in Subjects	WhatsApp	Facebook	Instagram	YouTube	Twitter	p-value*
Anatomy	2.5	2	3	2.5	3	0.118
Physiology	3	3	3.5	2.75	3	0.557
Biochemistry	3.5	3.25	3.5	3.5	3.75	0.430
Overall	3	2.5	3	3	3.5	0.262

*Calculated by Kruskal-Walis Test

Discussion

We studied the impact of social media usage on undergraduate medical students at a public-sector medical college in Pakistan. Our study was focused to investigate if there was a relationship between social media usage and academics based on positive or negative effects. Out of the total students who participated in the research 52.3% were females and 47.7% were males. The reason is that it is seen that during the past few years, the female candidates selected for medical seats are higher in ratio than males. A greater number of female students apply for medical and their increasing success rate causes a greater number of female students in medical college as compared to males. The study conducted by the students of Aga Khan University and Medical College, Karachi, Pakistan in 2014-2015 (7) also showed that 56.4% of the students were females.

Most of our study participants are from Punjab because the study was conducted in a public medical college in Punjab and hence most of the students in the college are of Punjabi ethnicity. A recent study about the adoption of social media technologies and their impact on student's academic performance conducted in Pakistan in 2016 by M. Arif & Samia Kanwal (8), also involving 4122 students showed that the maximum number of students belonged to Punjab. The least number of students were from Sindh because, in our public sector Medical College, there are no quota seats for Sindh students, and the only student whose ethnicity is Sindh who has been admitted via open merit seat was from Punjab. In our study, most students (81.8%) were Hostel lite and the least (18.2%) were day scholars because Sahiwal is a small city with a smaller number of residing people, and students from nearby areas prefer this Medical College. Since more students lived far away from college and could not waste a long time going to their homes and coming back for college every day. The college hostel is located within the college premises. So, more students preferred staying in hostels and could save

time which would have been spent during traveling. Another study disclosed similar results(9)

Our study result showed that WhatsApp is the most frequently used app with 39.8% and Facebook is the second most frequently used app with 23.9%. As our study-related groups are mainly on WhatsApp, moreover students are part of many societies that also coordinate with each other through the platform WhatsApp and to interact with the class. Moreover, all the announcements related to the lecture timings, tests, and results are provided to us through this platform. Also, many students use WhatsApp and Facebook for making research groups and interacting with each other and their teachers for efficient work. A similar study conducted in a government medical college, Kerala India, also showed that usage of WhatsApp was maximum among other social media applications (4). Our study also showed that among all social media applications, the usage of Twitter is very less because responding students have less familiarity with this social media application. The majority of students(60.22%) used social media for 2-6 hours daily and the lowest number of students(11.3%) used social media for less than 2 hours per day. A similar study conducted in April 2020 by Dr. R. Sivakumar(10), shows that most of the students spent 2-6 hours daily on social media.

Our study result showed no impact of social media usage on the performance of participants in-class tests or annual professional examinations. Likewise, a study (11) also detected no impact of social media usage on students' academic performance. However, some studies (12, 13)also found a negative relationship. And some also show a positive relationship(10). Anatomy is one of the fundamental subjects in the medical curriculum, and its understanding is essential for a medical student's success (3). Despite its significance, students often struggle to achieve satisfactory grades in this subject, which can have detrimental effects on their overall academic performance (14). One of the reasons for this could be the use of Social media for less than two hours by medical students. In this research discussion, we will explore the relationship between the use of Social media and bad grades in anatomy subjects among medical students. The findings of this study suggest that the use of Social media for less than two hours per day may harm the academic performance of medical students in anatomy subject. One possible explanation for this could be that students who use their Social media less are not utilizing technology to its full potential, including access to anatomy-related apps and resources. Furthermore, students who use their Social media less may be spending more time on other activities that do not contribute to their academic success.

It is important to note that the results of this study do not necessarily indicate a causative relationship between mobile phone usage and bad grades in anatomy subjects. Other factors, such as study habits and time management, could also contribute to poor academic performance. Nevertheless, the results do suggest that medical students should consider the potential impact of their mobile phone usage on their academic success and may want to explore ways to optimize their use of technology to enhance their learning experience (15). The results of this study suggest that the use of Social media for studying can have a positive impact on student's grades in biochemistry. The use of Social media may allow students

to study at their own pace, in a location of their choosing, and with easy access to study materials. Additionally, the use of Social media for studying may encourage students to utilize technology and engage with the course content more interactively (16). However, it is important to note that excessive use of Social media can be detrimental to students' mental and physical health, so it is essential to use them in moderation and with proper self-regulation (17).

Physiology is an important subject in medical education that requires a thorough understanding of the human body and its functions. Attaining good grades in Physiology is a key goal for medical students, as it reflects their understanding and mastery of the subject matter (18). Social media are a ubiquitous technology that has increasingly been integrated into various aspects of modern life, including education (19). Our results also showed that the students who were using Facebook showed a decrease in their cGPA. Facebook, along with other social media platforms, can be highly addictive and time-consuming. Students who spend too much time on Facebook may be more likely to procrastinate, resulting in less time being spent on studying and completing assignments (20). This lack of effort may lead to a decrease in their overall academic performance, including their cGPA in anatomy and biochemistry.

Furthermore, excessive use of social media can also negatively impact mental health. Studies have shown that social media use can lead to increased stress, anxiety, and depression, which can all harm a student's academic performance (21). In anatomy and biochemistry, understanding complex concepts and memorizing vast amounts of information is crucial for success. This requires a great deal of concentration and focus, both of which can be hindered by the distractions and notifications that come with excessive social media use (22). On the contrary, the use of Twitter by medical students has shown that they got better grades in anatomy and biochemistry. It is important to prioritize academic goals and develop a study routine that allows for focused learning and practice. This may involve limiting social media use or setting specific times for engagement with online platforms.

Conclusion

The use of social media has no impact on the academic grades of students.

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