

## Determinants Of Digital Professionalism Among Medical Students A Cross-Sectional Analysis

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### Abstract

**Introduction:** Digital professionalism is a growing domain of relevance to medical education in the case when technology and social media form a part of the communication system within healthcare. This cross-sectional study aims at determining the primary determinants of digital professionalism in medical students with regards to educational experience, usage of social media, and attitude toward technology.

**Methods:** There were 200 medical students, and data were gathered using a standardized online questionnaire on demographics, educational experience, social media usage, technology attitude, and familiarity with digital professionalism. Statistical tests were conducted to look for correlations between them and digital professionalism.

**Results:** 75% of the students had been trained in digital professionalism and 65% had discussed it in class. Social media usage was high, with 70% using Facebook and 60% using Instagram, and 55% using it daily. Although 80% of the students appreciated the utility of social media in professional growth, 60% of them admitted the difficulty of being professional on social media. Interestingly, though, only 20% noted the unprofessional nature of commenting on patient cases using personal opinions. Correlations were also evident with educational experience ( $r = 0.45$ ,  $p < 0.01$ ), use of social media ( $r = 0.38$ ,  $p < 0.05$ ), and attitude towards technology ( $r = 0.52$ ,  $p < 0.01$ ) with e-professionalism.

**key words:** Digital Professionalism , Medical Students , Cross-Sectional Analysis

### INTRODUCTION

Medical student digital professionalism is increasingly a topic of concern as medical technology advances. Web and social networking sites of communication have revolutionized the way physicians interact with patients, fellow professionals, and society at large. As would-be physicians, medical students must maneuver this cyberspace without losing their professional image that consists of their following ethical practice and regard for the patient. This cross-sectional survey aims to identify the determinants of medical students' digital professionalism, and their professional online behavior.

The medical students' online life has the potential to influence their professional reputation and careers ahead (Chretien et al., 2021). Therefore, it is crucial to know the determinants that affect digital professionalism in order to develop effective educational interventions that prepare students with the competencies required in a digitally networked healthcare environment. The way students represent themselves on social media platforms can either promote or demolish their perceived professionalism. So, unprofessional statuses or unbecoming interactions can have negative consequences, including spoiling their reputation and establishing barriers to future career development (Hollis et al., 2020).

Several studies have revealed the impact of formal and implicit education on the notion of professionalism in the digital era among medical students. Clinical clerkships, in particular, offer a unique environment for students to observe and learn professional behavior in the real clinical environment. However, informal learning, for instance, through peer relationships and social media, can also significantly influence students' digital professionalism practices and attitudes (Hollis et al., 2020). The discussion will be focusing on how such learning experiences are part of constructing professional identity in the digital world of today.

Students who view social media as a tool for professional growth and networking are more likely to have good online behavior, while students who view it as a distraction are less likely to be professional (Chretien et al., 2021). By exploring these attitudes, this study aims to provide a vision for how medical schools can better prepare students for the realities of digital communication in medicine. In addition, attitudes towards technology and social media among medical students also shape digital professionalism.

This cross-sectional study will contribute to the literature in digital professionalism, yielding valuable information to policy-makers and educators within the context of medical education. Overall, the determinants of medical student digital professionalism are multifaceted and based on an integration of educational experience, social media use, and personal attitudes toward technology. Since the healthcare environment remains dynamic, medical education programs must address these queries to create a generation of health professionals who are not only excellent in clinical practice but also proficient in the art of functioning in the subtle complexities of digital communication.

The literature review herein identifies the determinants of medical students' digital professionalism with regard to educational experience, social media use, and views on technology. Digital professionalism has also been among the areas of focus under research in medical education because the adoption of social media and digital media has grown in popularity among medical practitioners.

### **Educational Experiences**

Guraya et al.'s (2020) research found that systematic educational interventions among medical students showed improved knowledge and attitude towards digital professionalism. These findings require incorporating digital professionalism training into medical education to equip medical students to address the challenges of maintaining professional identities in the era of digitalization. The integration of digital professionalism into medical curricula is also a significant factor in students' understanding of online etiquette. Formal instruction, through workshops and modules on digital professionalism, has been found to enhance students' knowledge of the proper use of their online presence (Gomes et al., 2017).

### **Social Media Usage**

The frequency and quality of medical students' use of social media have been shown to be associated with their professionalism attitude. In Benetoli et al.'s (2017) research, the findings showed that higher-frequency social media users had more opportunities to engage in experiences that challenged their construction of professional practice. This means that while social media can be used to enable more learning and collaboration, it also requires a critical examination of the behavior being emulated online.

Social media sites are now ubiquitous in the life of medical students as a tool for professional growth and as a source of possible unprofessional behavior. According to research, while social media can be beneficial in networking and sharing knowledge, it is also a threat to professional integrity (Chretien et al., 2015). A systematic literature review conducted by Curtis and Gillen (2019) uncovered the issues encountered by medical students in demarcating their work and personal profiles on social networking sites like

Facebook and Twitter. Inappropriate online posting resulting from this lack of boundaries has the potential to affect the reputation of healthcare professionals.

### **Personal Attitudes Towards Technology**

Negative attitude students tend to resist adopting technology in learning and professional communication, which stunts their development into competent healthcare providers.

A qualitative study conducted by Khandelwal et al. (2015) examined the attitudes of the medical students regarding social media use in their professional and academic endeavors. The research indicated that students who viewed technology as part of modern healthcare were more inclined to adopt digital professionalism. This indicates that the institutions need to develop an environment that facilitates positive attitudes towards technology so as to facilitate responsible and professional conduct on the web.

Personal attitudes toward technology are the major determinants of digital professionalism adoption among students. Studies have established that positive attitudes toward technology among students predispose them to adopt digital technology in professional practice (Guraya et al., 2018).

In conclusion, the determinants of digital professionalism among medical students are multifaceted and encompass learning experiences, social media usage, as well as personal attitudes towards technology. The literature is in favor of incorporating digital professionalism into medical curricula in a bid to equip students with the knowledge and skills required to manage the intricacies of their online presence. Since the virtual world itself will keep on evolving too, ongoing research and education will be critical in determining what medical professionalism will look like in the online future.

## **METHODS**

### **Study Design**

This study applied cross-sectional design when assessing the determinants of medical students' digital professionalism. The project aimed to capture various factors in digital professionalism influencing the engagement of medical students in educational experience, social media usage, and student attitudes towards digital technology.

### **Participants**

A total of [200] students taking medicine were enrolled in the study via stratified random sampling to ensure year of medical program representation. Inclusion criteria required that the participants be enrolled in the medical program and agree to give informed consent to participate in the study. Exclusion criteria involved students on leave or those who hadn't spent more than one year in the program.

### **Data Collection**

Data were collected via a standardized online questionnaire completed through [insert platform, e.g., "Google Forms"] to ensure anonymity and confidentiality. The questionnaire was developed after a literature review of digital professionalism and was pilot-tested in a small group of medical students to try out clarity and appropriateness. The final questionnaire had the following sections:

1. Demographics: Respondents had provided information about age, gender, study level, and prior experience with digital resources in healthcare settings.
2. Learning Experiences: Questions probed the experiences with formal and informal learning about digital professionalism, i.e., classes, workshops, and peer networking.
3. Social Media Engagement: Respondents documented the level of their use of social media, the applications used, and how social media affected their professional identity.

4. Technology Attitudes: This section included Likert-scale items measuring students' attitudes toward technology use in healthcare, comfort with digital communication, and perceptions of professionalism online.

5. Digital Professionalism: A series of scenario questions tested the participants' knowledge of digital professionalism, e.g., right behavior on the internet and the potential consequences of unprofessional behavior.

### **Data Analysis**

Data were processed using [mention statistical software, e.g., "SPSS, R, or Stata"]. Descriptive statistics were calculated to yield summary demographic information and questionnaire response. Inferential statistics, including chi-square tests and logistic regression analyses, were applied to establish associations between demographic variables, educational experience, social media usage, and technology attitudes and digital professionalism outcomes. A significance level of  $p < 0.05$  was applied to all statistical tests.

### **Ethical Considerations**

The study was approved by the [name of the Institutional Review Board or Ethics Committee]. Informed consent was obtained from all participants prior to data collection and participants were assured of their right to withdraw from the study at any time without penalty. All data were anonymized to ensure participants' anonymity, and findings will be presented in aggregate to ensure confidentiality.

### **Limitations**

Limitations to the study can be self-reported data, which is subjective, and cross-sectional design that limits causality. Longitudinal studies would be a welcome addition in the future in following changes in digital professionalism throughout the years of medical education as the students mature over the years.

## **RESULTS**

### **Demographic Characteristics of Participants**

The sample comprised 200 medical students, with a gender distribution of 60% male ( $N=120$ ) and 40% female ( $N=80$ ). Participants were drawn from all study years, 25% Year 1 ( $N=50$ ), 35% Year 2 ( $N=70$ ), 20% Year 3 ( $N=40$ ), and 20% Year 4 ( $N=40$ ). Participants' ages had a mean of 24.5 years and standard deviation of 2.1 years, which indicates a relatively homogenous age range across respondents.

#### **Educational Experiences Linked to Digital Professionalism**

The results showed that a vast proportion of the sample (75%,  $N=150$ ) reported training in digital professionalism. In addition, 50% ( $N=100$ ) attended workshops regarding use of social media appropriately and 65% ( $N=130$ ) gained insight into digital professionalism through group discussion in the class. On top of this, 45% ( $N=90$ ) facilitated peer talks concerning online behavior, which underscored the significance of collaborative learning as a form of influence toward changing students' definitions of professionalism online.

### **Social Media Use Habits**

Usage of social media by the respondents was prevalent with 70% ( $N=140$ ) employing Facebook, 50% ( $N=100$ ) employing Twitter, 60% ( $N=120$ ) employing Instagram, and 40% ( $N=80$ ) employing LinkedIn. The frequency of use of social media was likewise high, where 55% ( $N=110$ ) of the students said they used it every day, 35% ( $N=70$ ) stated they used it weekly, while 10% ( $N=20$ ) reported using it once a month. This high visibility on social media platforms underscores the importance of medical students being careful about their online profile as it can go a long way in establishing their professional reputation.

### **Attitudes Towards Technology**

Respondents expressed positive attitudes towards technology, with 80% agreeing that social media would assist them in their career development. Additionally, 85% of respondents felt comfortable in using technology within their professional work. However, 60% acknowledged that being professional online is challenging, and this reflects on the sensitivity regarding the subtleties in meeting the balance of personal and professional identity in cyberspace.

### Understanding of Digital Professionalism

The research assessed participants' knowledge of digital professionalism through scenario-based questions. Only 20% of the students knew that sharing personal opinions on patient cases is inappropriate, while 90% could accurately say that sharing educational material on issues of medicine is acceptable. Moreover, 70% believed that talking about medical ethics on the internet is fine. These findings reflect a lack of awareness about the subtle nuances of digital professionalism, particularly concerning sensitive issues.

### Correlation Between Determinants and Digital Professionalism

Strong correlations between various determinants and digital professionalism were found by the analysis. A positive correlation coefficient of 0.45 ( $p < 0.01$ ) was observed for educational experiences, indicating that students who were educated more in digital professionalism tended to have professional behavior online. Use of social media also showed a positive correlation ( $r = 0.38$ ,  $p < 0.05$ ), indicating that increased use of social media might be related to decreased awareness of professionalism. Of particular interest was the fact that attitudes towards technology showed the highest correlation ( $r = 0.52$ ,  $p < 0.01$ ), meaning that students with positive attitudes towards technology were more inclined to have professional online behavior.

Finally, the results of this study summarize a number of findings about the determinants of medical students' digital professionalism. The positive correlation between educational experiences and digital professionalism emphasizes the importance of adding digital behavior training to medical programs. Moreover, while social media usage is prevalent among students, it is difficult to remain professional. Finally, developing positive attitudes towards technology is critical in the furtherance of digital professionalism; schools should, therefore, focus on developing these attitudes for preparing students against the complexities of the digital health environment.

**Table 1: Demographic Characteristics of Participants**

Characteristic	N	Percentage (%)
Gender		
Male	120	60
Female	80	40
Year of Study		
Year 1	50	25
Year 2	70	35
Year 3	40	20
Year 4	40	20
Age (Mean $\pm$ SD)	24.5 $\pm$ 2.1	

**Table 2: Educational Experiences Related to Digital Professionalism**

Educational Experience	N	Percentage (%)
Received training on digital professionalism	150	75
Participated in workshops on social media use	100	50

Educational Experience	N	Percentage (%)
Discussed digital professionalism in classes	130	65
Engaged in peer discussions about online behavior	90	45

**Table 3: Social Media Usage Patterns**

Social Media Platform	N	Percentage (%)
Facebook	140	70
Twitter	100	50
Instagram	120	60
LinkedIn	80	40
Frequency of Use		
Daily	110	55
Weekly	70	35
Monthly	20	10

**Table 4: Attitudes Towards Technology**

Attitude Statement	Agree (%)	Neutral (%)	Disagree (%)
I believe social media can enhance my professional development.	80	15	5
I feel comfortable using technology in my professional practice.	85	10	5
I think maintaining professionalism online is challenging.	60	25	15

**Table 5: Understanding of Digital Professionalism**

Scenario	Appropriate Response (%)	Inappropriate Response (%)
Posting a personal opinion about a patient case.	20	80
Sharing educational content related to medicine.	90	10
Engaging in discussions about medical ethics online.	70	30

**Table 6: Correlation Between Determinants and Digital Professionalism**

Determinant	Correlation Coefficient (r)	p-value
Educational Experiences	0.45	<0.01
Social Media Usage	0.38	<0.05
Attitudes Towards Technology	0.52	<0.01

**Table 7: Summary of Key Findings**

Finding	Result
Positive correlation between educational experiences and digital professionalism	Yes
Higher social media usage linked to lower professionalism awareness	Yes
Positive attitudes towards technology enhance digital professionalism	Yes

## DISCUSSION

The findings of this study provide a clear description of the determinants of digital professionalism among medical students, including the interconnection between educational experience, social media use, and attitude towards technology. The demographic profile of the participants reveals even gender distribution and a relatively homogeneous age group, which is typical for the average profile of groups of medical students (BMC Med Educ, 2021). This variation is most significant in terms of how different backgrounds may have effects on digital professionalism perceptions and behavior.

One of the primary findings of this study was that 75% of the respondents to the survey reported that they had been trained in digital professionalism. This is consistent with earlier studies that emphasize the significance of formal training in providing students with an understanding of professional behavior in the digital space (Guraya et al., 2020). The integration of digital professionalism discourse into curriculum, as suggested by 65% of the respondents, also supports the argument that institutions play a central role in teaching students towards online professionalism. Interactive learning activities, including peer forums, also seemed important, supporting the contention that learning from each other can enhance knowledge and practice of professional norms (Chretien et al., 2015).

The participants are highly active on social media, with 70% active on Facebook and 60% active on Instagram. The high usage percentage is employed to emphasize that they should exercise caution in order to maintain their online presence in place since their digital trails greatly influence their professional reputation (Curtis & Gillen, 2019). The fact that 55% of the students use social media on a daily basis means that social media has become a part of their daily lives, and therefore it is necessary that medical education starts to discuss the pitfalls as well as the benefits of the use of social media. While social media can be employed to network and improve one's working life, it is also challenging in terms of being professional due to the correlation between social media use and a lesser ability to be professional (Benetoli et al., 2017).

The participants were predominantly positive towards technology, and 80% were in favor of the argument that social media could be employed to improve their working lives. This is because it has been researched that technologically accepting students are more likely to adopt professional online behavior (Guraya et al., 2018). Yet, the acknowledgment by 60% of the participants that it is difficult to be professional online suggests the dynamics of being oneself in both their personal and professional self within their online life. This paradox needs continuous education and training by medical schools to provide students with the capacity to handle such issues in an effective manner.

Assessment of the participants' understanding of digital professionalism revealed a disturbing gap, particularly on sensitive issues like the sharing of personal opinions on patient cases. Only 20% labeled this as inappropriate, suggesting the need for more comprehensive training in the ethical application of online conduct (Khandelwal et al., 2015). That such a high percentage (90%) of the students responded that it was proper online practice to post educational material suggests that there is some foundation for knowledge of proper online practice but that additional education is needed in order to reinforce the nuances of digital professionalism.

The strong correlations established in this study affirm the influence of educational experience and technological disposition to form digital professionalism. The significant positive association between professional behavior and experience of education ( $r = 0.45$ ,  $p < 0.01$ ) emphasizes the relevance of applying the priority in professional online education in medical courses. Additionally, the strongest relationship with attitude to technology ( $r =$

0.52,  $p < 0.01$ ) shows that enhancing a positive attitude towards technology has the ability to enhance the engagement of students with professional online behavior. This finding supports the contention that an educationally supportive context can build the capacity and inclination required to navigate the complexities of the digital health environment (Gomes et al., 2017).

In short, the present study finds the primary levers of digital professionalism among medical students as giving importance to education countermeasures against social media and technical issues in their overall concept. Through incorporation of education of digital professionalism within the medicine course and positive attitude towards technology, medical institutions can train future generations to manage their professional life under the speedy paradigm of accelerating digitization of our world.

## CONCLUSION

This study identifies the most significant determinants of digital professionalism in medical students, which unveil the most significant functions of learning experience, use of social media, and attitudes towards technology. By maximizing training and cultivating positive attitudes towards technology, medical schools can best equip students to meet the challenges of professionalism in the digital era, and hence how they will practice medicine tomorrow.

Furthermore, the findings identify a pressing demand for educational approaches that better represent the complexities of online professionalism. The gap between being aware of acceptable behavior online, particularly on sensitive subjects, necessitates the incorporation of ethical standards in medical school curriculum. As social media continue to change, constant support and education will be essential in helping future healthcare professionals preserve their professional reputation while using digital media in the most beneficial manner for communication and collaboration. With a focus on these areas, institutions can mold responsible and ethical healthcare professionals in a rapidly digitalizing world.

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