

What do Medical Students Post Online? Perception on Medical Professionalism in Social Media among Medical Students in Universiti Putra Malaysia

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ABSTRACT

The fast development and accessibility of social media has created an important potential for improvements in the medical field. However, it may also increase the risk of unprofessional conduct among its users including medical students. This study aimed to determine the pattern of social media usage and the self-perceived online professionalism among medical students in one public university in Malaysia. A cross sectional study using a questionnaire was conducted. The questionnaire consisted of participant's demographic details and perception of professionalism on social media usage, using a 5-point Likert scale. The descriptive data analysis was done using SPSS V21.0. Results showed majority (80-93%) denied making postings related to defamation, racism, gender discrimination, potential breach of confidentiality and bad behaviour. 30% shared their social media accounts and postings to public audience and 22% will accept their patients as friends or followers. Most students denied any improper posting related to potential unprofessional statements and behaviour hence perceived as still guarding their online professional conduct. However, some are still not sure about issues related to privacy settings and doctor-patient boundaries on social media. Hence, it is important to educate medical students regarding online medical professionalism and the potential challenges associated with online interaction via social media.

Keywords: *Social media, medical students, medical professionalism, online conduct, Malaysia.*

INTRODUCTION

Social media has taken our world by storm and has an immense impact in each aspect of human's life. Health care is no exception. The wider access of the internet made it easier for people to get health-related information and ease communication between patients and health care providers in various situations (Chen & Wang, 2021). Social media is defined as a series of Internet-based software (apps) that allow the creation and exchange of user-generated content and has become an indispensable part of the lives of billions of people around the world (Farsi, 2021). Until August 2021, the top three social media used worldwide are Facebook, Twitter and Pinterest with 73.3 %, 8.9% and 7.2 % users, respectively (Statcounter Global Stats, 2021). In Malaysia, by August 2021, the same resource mentioned the top five social media used were Facebook, YouTube, Twitter, Pinterest and Instagram.

Generally, social media is widely used by medical students. In one systematic review, it was reported that 75% of medical students use social networking sites (Guraya, 2016). Few other studies reported more than 90% of medical students used social media and the majority of them had Facebook and Instagram accounts (AlFaris, Irfan, Ponnampereuma, Jamal, Van der Vleuten, ..., & Ahmed, 2018; Pop, Iorga, Şipoş & Iurcov, 2021; Saadeh, Saadeh & de la Torre, 2020).

The health care professionals and medical students used social media for a myriad of purposes, be it for personal or career use. They shared and exchanged their medical knowledge and clinical experience and even shared their problems encountered throughout their day-to-day life in hospitals and clinics (Hazzam & Lahrech, 2018). Social media is also used as a medium for education, through file sharing and keeping updates with the recent medical advancement, and as means of communication with the society for discussion and intervention (Alfian, Athiyah & Nita, 2021; Mulrennan & Colt, 2020). In some situations, healthcare professionals used it to gather information about their patients and learnt the struggles and strengths of patients and survivors in dealing with their medical conditions (Surani, Hirani, Elias, Quisenberry, Varon, Surani & Surani 2017).

Few reports mentioned that the social media usage among healthcare professionals and medical students had positively impacted their practices particularly related to the healthcare delivery, clinical research conduct and opportunity for patients to increase their illness-related knowledge and skills (Long, Qi, Ou, Zu, Cao, Zeng, Li, ..., & Wang, 2017; Surani et al., 2017). However, it may pose some risks because the public may misunderstand or misjudge the behaviour of medical students or health care professionals in social media particularly when personal and professional boundaries may inadvertently collide (Giustini, Ali, Fraser & Boulos, 2018). Some ethical issues may come up from social media use in the health care setting, and medical professionalism misconduct is one of them.

Online medical professionalism becomes an important subject to study because every health professional including medical students has to honour their professional conduct and ethics, even in the virtual world ("WMA - The World Medical Association-WMA International Code of Medical Ethics", 2018). Unprofessional conduct will result in breach of public trust and may tarnish the good perception towards the medical profession and eventually affect the ability to efficiently treat patients (Khana, Singh, Damanhoori & Mustaffa, 2020).

LITERATURE REVIEW

Online Medical Professionalism

There has been a considerable amount of discussions concerning medical professionalism in medical education literature. In relation to social media usage, the issues commonly covered are related to confidentiality, defamation, doctor-patient boundaries, accessibility towards data information and issues with employment (Mota-Anaya, Almeida-Chafloque, Castro-Arechaga, Flores-Anaya, León-Lozada, Pereyra-Elías & Mayta-Tristán, 2019; Rashid & Devaraj, 2020). General Medical Council (GMC) guidelines had stated that doctors and medical students should not display patients' information online. Although a little shared information of a patient may not be adequate to reveal the identity, it will lead towards a patient or their relatives if they are others who also shared some information online. Health care professionals should get the patient's consent and disclosure before doing such a thing to avoid the risk of breaching the patient's confidentiality (British Medical Association, 2018). Any form of breaching confidentiality of patient can lead to disciplinary action taken by the medical registration authority, and it also can affect the public trust and opinion towards the medical profession (Norman, Soo, Lam & Thirumoorthy, 2021).

Defamation is the act of making a reasonless statement about an organisation or a person that is meant to give a bad effect to their reputation (British Medical Association, 2018). Codes of professional conduct in medical practice stated that colleagues must be treated fairly and with admiration and to avoid any inappropriate behaviour that can lead to

tarnishing their reputation or the profession. Hence, any online comment on the profession or other fellow colleagues should be taken with care. If the defamation acts can be proven, it can jeopardize the employment and even lead to loss of job and civil claims (General Medical Council, 2013).

Doctor-patient boundaries are also one of the important aspects in medical professionalism and these principles also apply in online interaction. Generally, people are less concerned about their personal information they want to exchange with their online friends, without realising it could be accessed by others. It is almost impossible to delete any information once it has been shared (British Medical Association, 2018). Medical professionals need to be mindful of the risks of displaying content on social media which is accessible to the public and be aware at all times of who has access to their personal information online and how far this content may be shared. In social networks, patients may have unlimited access to doctor's personal information and this can cause challenges in doctor-patient professional relationships (British Medical Association, 2018). Privacy settings in the application meant to provide users a way to control their account and put a limitation on who can see their information. Even though an increased number of medical professionals were aware of the privacy setting compared to ten years ago, there was a knowledge gap in terms of comprehending its usage in social media (Chretien, 2011; Low, Tan & Joseph, 2020).

Medical Professionalism on Social Media Among Medical Students

Previous studies showed most medical students used social media for professional purposes but a significant number of students had posted unprofessional content during their online interaction (Avcı, Çelikden, Eren & Aydenizöz, 2015; Barlow, Morrison, Stephens, Jenkins, Bailey & Pilcher, 2015). "Unprofessional content" was defined as online portrayal of illegal activities, obvious intoxication, or use of prohibited drugs and showing patient information. This study reported that 34.7% out of 880 medical students who responded to the survey had self-reported to post unprofessional online content mainly related to intoxication (34%). Interestingly, the results also showed the proportion of students who reported watching unprofessional content on other medical students' accounts was much greater than that of those who reported it being present on their own account (Barlow et al., 2015) which also has been observed in another study (Kitsis, Milan, Cohen, Myers, Herron, McEvoy, Weingarten & Grayson, 2016).

Reports also showed up to 60% of medical schools surveyed, mentioned that medical students had revealed unprofessional information online, and 30% of medical students had posted information about themselves that were perceived as unprofessional (Kind, Genrich, Sodhi & Chretien, 2010; Pronk, Gorter, van Luijk, Barnhoorn, Binkhorst & van Mook, 2021). This unprofessional content involves transgression of patient confidentiality, use of foul and prejudiced language in mentioning to peculiar persons or faculties, uploaded images of intoxication, sexually suggestive information, and pictures with forbidden substances. In many cases, this had led to disciplinary actions including expulsion. This case study discussed a controversial YouTube video done by medical students which later created conflict (Farnan, Paro, Higa, Edelson & Arora, 2008). Kitsis et al. (2016) hypothesised that as medical students progress in the medical field, they will become more professional on social media due to the increased awareness and education. However, the hypothesis was not supported by their data which showed no association of academic year in study with the unprofessional online content. Similar findings were also reported in another study (Avcı et al., 2015, Mota-Anaya

et al., 2019). Medical students who are often younger people, may be at a higher risk to breach online medical professionalism than practicing physicians, not only because they use social networks more frequently, but they are more likely to be spontaneous, carefree and may not fully develop their professional identities (Fox & Duggan, 2013; Mota-Anaya et al., 2019)

To date, most studies on medical professionalism involving medical students in Malaysia mainly covered the general view of the issue and not specific to social media or online medical professionalism (Guraya, Sulaiman, Guraya, Yusoff, Roslan, Al Fahim, Abdelrehman & Khoshhal, 2020; Haque, Zulkifli, Haque, Kamal, Salam, Bhagat, Alattraqchi & Rahman, 2016; Mohd Rani, Jamaludin, Azmi, Ramli, Subri, Osma & Nik Ismail, 2017; Parthiban Boland, Fadil Azim, Pawlikowska, O'Shea, Jaafar & Morgan, 2021; Yadav, Jegasothy, Ramakrishnappa, Mohanraj & Senan, 2019;). One recently published study involving medical students in a private university in Malaysia revealed that most students realised the future influence of social media, aware of its improper use and the potential effect of it on their employment if it is used unprofessionally (Guckian et al., 2021).

However, there had been reports of unprofessional behaviour on social media done by Malaysian medical students and doctors. In some instances, disciplinary actions had been taken to those involved (Boo, 2019; Free Malaysia Today, 2019; Kili, 2015).

More studies to describe and explain the behaviour of medical students on social media and their perception on medical professionalism when utilising it, is needed. Therefore, this research aimed to determine the pattern of social media usage and to assess their perception related to medical professionalism during their online interaction on social media. The findings from this research will give some insight on this issue and help to provide information in creating guidelines and education materials for medical students in Malaysia.

METHODOLOGY

This is a cross-sectional study utilising a quantitative method. Data was collected using questionnaires given to medical students (first to the fourth year) in the Faculty of Medicine and Health sciences, UPM. The sampling size calculation is based on this formula for hypothesis testing purpose (Hall, Hanna & Huey, 2013):

$$\frac{\{z\sqrt{2\underline{P}(1-\underline{P})} + z_{\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)}\}^2}{(P_1 - P_2)^2}$$

z = confidence level at 95% (standard value of 1.96)

z_{β} = 0.84

$$\underline{P} = \text{proportion where } \frac{P_1 + P_2}{2}$$

P_1 = 0.580 - Proportion of professionalism on social media usage among male medical students (Hall, Hanna & Huey, 2013).

P_2 = 0.766 - proportion of professionalism on social media usage among female medical students (Hall, Hanna & Huey, 2013).

Based on the formula, the total number of sample size was 238. This included both proportions and the additional 20% after taking into consideration the non-respondents. Disproportionate stratified sampling method was utilised to get the number of samples for each academic year using the following formula.

$$\frac{\text{Total number of students in academic year}}{\text{Total number of students}} \times \text{sample size}$$

Subsequently the simple random sampling method was used to select the respondents from each academic year. Each student had an equal chance to be selected (Table 1).

Table 1: Number of respondents for each academic year

Academic year	Total number of students	Number of students selected
1	93	49
2	102	53
3	117	61
4	144	75
Total	456	238

The study instrument used was the questionnaire survey on social media use which was developed based on the existing literature. The questionnaire had four sections comprising a total of 25 questions, assessed using multiple choice answers and Likert scale. The questionnaire consists of a section on sociodemographic profile which include gender, ethnicity and academic year, the frequency of social media used and elements related to online professionalism; which asked on issues related to defamation, accessibility towards data information, type of social media posting, doctor-patient boundaries and confidentiality (Avcı et al., 2015; Barlow et al., 2015; Kind et al., 2010). A pre-test validity was conducted by distributing 30 sets of questionnaires to medical students in another university. This is to determine the relevance of the questions, the duration to answer and the understanding of the questionnaire. The results of the pre-test were used to modify the questionnaire before being administered to the actual study population. The Cronbach's alpha after review was 0.634 which was moderately acceptable (Taber, 2017). The questionnaire then was printed and self-administered to the selected participants.

Both frequency and percentage were used to analyse the descriptive variables. Response frequencies of each question were calculated. All collected data were analysed using IBM SPSS Statistics Version 21.0 (SPSS Inc). Ethical approval was obtained from the Ethic Committee for Research Involving Human Subjects, UPM (JKEUPM) and the data from the respondents were kept confidential and not identified.

RESULTS AND DISCUSSION

The response rate was 90%, and 214 questionnaires were analysed. Table 2 shows the distribution of respondents by sociodemographic factors. The respondents were from both clinical and preclinical medical students in University Putra Malaysia (UPM). Most were females and Malay ethnicity. The higher percentages of females (72.4%) and Malay ethnicity (72.0%) reflected the population of medical students in UPM for that year. The larger number

of pre-clinical students (52.3%) compared to clinical students was most probably due to the non-respondents from the clinical year students who were having their examination during the data collection period.

Table 2: Sociodemographic data of the respondents

Socia demographic factors		N	%
Gender	Male	59	27.6
	Female	155	72.4
Ethnicity	Malay	154	72.0
	Non-Malay	60	28.0
Academic year	Pre-clinical	112	52.3
	Clinical	102	47.7

Table 3 showed the distribution of the type of social media account among the respondents and revealed that almost all students have a Facebook account followed by Instagram and YouTube. Table 4 shows the frequency of social media usage among respondents. 78% used and checked their Facebook account daily and half of them checked their respective Instagram account daily.

Table 3: Distribution of type of social media account among respondents

Social media account		N	%
Facebook	Yes	213	99.5
	No	1	0.5
Blogger	Yes	41	19.2
	No	173	80.8
YouTube	Yes	135	63.1
	No	79	36.9
Instagra m	Yes	159	74.3
	No	55	25.7
Twitter	Yes	114	53.3
	No	100	46.7

Table 4: Frequency of social media usage among respondents

Social media	Not applicable	Never	Once per week	Several times per week	Daily
	N (%)	N (%)	N (%)	N (%)	N (%)
Facebook	1(0.5)	5 (2.3)	14(6.5)	28(13.1)	166(77.6)
Instagram	55 (25.7)	5 (2.3)	15 (7.0)	38 (17.8)	101 (47.2)
Youtube	79 (36.9)	5 (2.3)	13 (6.1)	55 (25.7)	62 (29.0)
Twitter	100 (46.7)	12 (5.6)	13 (6.1)	21 (9.8)	68 (31.8)
Blogger	173 (80.8)	20 (9.3)	17 (7.9)	4 (1.9)	0 (0)

Our study showed 100% of our respondents have at least one social media account and Facebook appeared to be the most commonly used among them. Only one student did not have a Facebook account. The finding is consistent with few other studies that reported a high percentage of medical-related courses students have an account on social media (Avci et al., 2015; Pop, Iorga, Şipoş & Iurcov, 2021; Pronk et al., 2021; Saadeh, Saadeh & de la Torre, 2020; Subramaniam, 2014).

Students use Facebook for a few reasons, usually for leisure to occupy time when they are bored, for communication and some use it for their learning (Lahiry, Choudhury, Chatterjee & Hazra, 2019; Saadeh et al., 2020; Thomspson, Dawson, Ferdig, Black, Boyer, Coutts & Black, 2008). In our setting, the students used social media to share valuable information and knowledge in groups that they have created on Facebook. Each batch of students has its own Facebook group page. Every information and notes were shared through this platform, thus making it a necessity for students to have a Facebook account to access that group to ensure they did not miss any updates related to their class or teaching.

Three-quarter of our students who have a Facebook account used it daily. This finding is also similar to a study in Turkey which reported 74.4% of Facebook account users checked their account daily and another report showed that they spent many hours on social media (Avci et al., 2015; Pronk et al., 2021). There was also a study conducted in one of the private universities in Malaysia that showed 89.8% of the social media account users use their account daily, but this finding is not specific to only Facebook (Thurairaj, Hoon, Roy & Fong 2015). These data further supported the fact that social media, particularly Facebook, is popular and the most frequently used application among medical students. Social media has become an important part of their lifestyle.

Table 5: Self-reported professionalism related behaviour on social media usage

No	Items	Agree N (%)	Neutral N (%)	Disagree N (%)
1.	I have posted any statuses or comments with improper language or foul swearing	13 (6.1)	20 (9.3)	181 (84.6)
2.	I have posted content that can be interpreted as patient-identifying materials	16 (7.5)	24 (11.2)	174 (81.3)
3.	I have made negative statement about an individual that is meant to give bad effect to their reputation.	22 (10.3)	32 (15.0)	160 (74.7)
4.	I have discussed medical universities or health care institutions in a negative way	7 (3.2)	9 (4.2)	198 (92.5)
5.	I have discussed another medical students or health care professionals in a negative way	9 (4.2)	11 (5.1)	194 (90.7)
6.	I leave exposing content that could be understood negatively on your social media (posts, comments, statuses)	19 (8.9)	24 (11.2)	171 (79.9)
7.	I have posted content that can be interpreted as racist	9 (4.2)	6 (2.8)	199 (93)
8.	I have posted content that can be intepreted as gender discrimination	9 (4.2)	11 (5.1)	194 (90.7)
9.	I have posted pictures of myself drinking alcohol	3 (1.4)	6 (2.8)	205 (95.8)
10.	I have posted pictures of myself with illegal drug use	0 (0.0)	5 (2.3)	209 (97.7)

Table 5 showed the results of self-reported professionalism-related behaviour on social media among our respondents. Majority disagreed that they have posted improper content unto the social media including usage of foul language, breaching patient's confidentiality, negative posts related to racism, gender discrimination and improper photos of drinking alcohol or illegal drug use. The findings may indicate that the students were aware of the issues related to medical professionalism when using social media.

It is a well-known fact that culture plays a major role in shaping social behaviour for East Asian and Westerners and both communities have different perceptions about the world (Shariff, 2015; Ward & King, 2018). The culture within the society that people spend a lot of time with will influence both offline and online behaviour, although the distinction between

the Western and non-Western cultural value in online behaviour is getting more difficult to separate (Atrill, 2016).

Even though there is ongoing debate about the relationship of culture and religion with the moral behaviour of society, we believe both factors affect the pattern of social media posting in our study, particularly related to drinking alcohol and taking illicit drugs (Iwuagwu, 2018; Shariff, 2015). Islam, being the main religion in Malay society, prohibits its followers from taking alcohol and drugs. Our main respondents in this study were mostly Malays so it explains the low number of respondents who agreed with items related to drinking alcohol. Furthermore, people portrayed themselves in social media as a product of extended social cognitions and behaviours (Huang & Park, 2013), hence even though some other religions practiced in Malaysia allow consumption of alcohol, the social norm and moral values may prevent them from sharing their photos on social media while drinking alcohol.

One report showed that unprofessional content on social media was seen to be more common in surgical residents than the surgical faculty, and in another report, 40% of the recent urology residency graduates was shown to have unprofessional Facebook content. (Koo, Ficko & Gormley, 2017; Langenfeld, Cook, Sudbeck, Luers & Schenarts, 2014) Langenfeld (2014) found that male is more common to post unprofessional content on social media but that was not the case in the study done by Koo et al. (2017). The possible reason for this behaviour among the younger surgeons is likely due to the fact that binge drinking is more common in the younger age and decreased as one ages and with more advanced surgical training (Langenfeld et al., 2014) but may also be due to the more frequent and heavier usage of social media among younger individuals. However, in this study, we did not compare the difference of responses among different genders.

Violation of patient confidentiality is one of the most frequent professionalism lapses in social media (Ahmed, Jagsi, Gutheil & Katz, 2020; Chretien, Greysen, Chretien & Kind, 2009). Studies revealed that the knowledge of medical confidentiality and patient's privacy among medical students were not satisfactory and there was report stated 13% of deans of student affairs reported incidents of violations of confidentiality by medical students with 30% of professional violations were linked to patient confidentiality (Chretien et al., 2009; Fothan, Eshaq, & Bakather, 2019; Hosseini-Ghavam-Abad, Asghari, Bandehagh, Najafipour & Bigdeli, 2019). In this day and age, the handiness of smartphones to take photos and its connectivity to social media give a significant risk to patients and standardized patients during learning and training. The loss of online professionalism principle can be seen in one case where there were unauthorized recordings during demonstrations of pelvic examination (Chretien et al., 2009).

However, there were other studies which showed most medical students (92-97%) were concerned about the issue of patients' confidentiality and negative comments of the patients in the social media, even if the patient's confidentiality was not compromised (Guckian et al., 2021; Hall, Hanna & Huey, 2013; Kitsis et al., 2016,). They realised the impact of such posts and comments as they can be severe and may cost one's reputation and job (Economides, Choi, Fan, Kanuri & Song 2019; Pow, 2010).

It is good to know that most medical students in this study disagree with the statement related to improper social media posting that can lead to violation of the patients' confidentiality (item 2). However, there were about 7.5% of them who agreed and about 11% who were still uncertain with this statement. These medical students may not be aware of the harmful effect of displaying patients' information online could have on their careers or

medical professionalism in general (Chretien, 2011; O'Connor et al., 2021). More awareness and education about this issue should be emphasized in the curriculum of medical programs to prevent such incidents from happening. Health care professionals are in the privileged situation in acquiring and keeping patients' data and information. That privilege comes with huge responsibility and the practice is bound by ethics and regulations. All medical students should be made aware of their responsibility and constantly be reminded of the Hippocratic Oath, an oath that guides the profession for thousands of years which contain this important declaration: "What I may see or hear in the course of the treatment or even outside of the treatment in regard to the life of men which on no account one must spread abroad, I will keep to myself, holding such things shameful to be spoken about" (Miles, 2004).

Majority of our respondents disagree with statements related to endangering other people or institutional reputation (item 3,4,5). Social media content permits the sharing of content by users that can be anonymous, engaged in prompt expression and impulsive participation which are not applicable in traditional media. All these features facilitate the risk of defamation compared to traditional media, both as victims or offenders (Rolph, 2013; Sakolciová, 2021). Online communication poses a more substantial risk to defamation than the offline way of communication as it reaches a wider audience and stays longer. The use of emoticons that are widely available and used by social media users can strengthen the emotions and the message conveyed (Moffitt, Padgett & Grieve, 2020; Stapa & Shaari, 2012) and there was a report of defamation trial and settlement due to the emoticon used in a social media post (Pelletier, 2016). Not only is the post itself a threat for defamation, but the following comments can tarnish one's reputation, and things can get complicated and uncontrolled very fast.

Although the majority of our respondents disagree with the statement '*I have made negative statements about an individual that is meant to give bad effect to their reputation*', there were 10% of them who agreed and another 15% were neutral about this. This indicated about a quarter of medical students in this study were oblivious to the negative consequences including the risk of legal issues arising from their online interaction on social media. Social media exposes one's character, values and qualities and shapes the impression for an individual who uses social media including medical students (Azucar, Marengo & Settanni 2018; Ventola, 2014). All the information collected from the interaction in social media can be used as a criteria of the potential employment possibility or jeopardize one's employment (Hall et al., 2013). Future health care professionals who cannot post a responsible online content may also be seen as incompetent to make a mature and sound professional judgement (Peck, 2014; Weijs, Coe, Desmarais, Majowicz & Jones-Bitton, 2019). These findings further highlighted the need for a more serious education on social media usage for medical students to ensure they give a good first impression about themselves and to avoid the possibility of defamation in future.

Privacy Setting

This section described the findings related to the privacy setting of the social media used by the respondents as shown in Table 6.

Table 6: Privacy setting on social media

No.	Items	Agree N (%)	Neutral N (%)	Disagree N (%)
1.	I make my account on social media viewable to all.	65(30.4)	31(14.5)	118(55.1)
2.	I make my posts on social media viewable to all.	66(30.9)	24(11.2)	124(57.9)
3.	I will/have accepted friend requests or follower requests from my patients	47(22)	72(33.6)	95(44.4)

More than half of our respondents disagree with item 1 and 2 (55.1% and 57.9% respectively) which indicated that they will not allow their social media accounts to be publicly accessible. However, about 30% of them agreed with that statement, and some were still uncertain about this. The results showed about one-third of students were still not very clear about the advantages or disadvantages of the privacy setting of their social media account. Our findings are different from the study from Hall et al. (2013) and Kitsis et al. (2016) that showed more than 90% of their respondents who are pharmacy and medical students had reported using privacy settings. Our respondents may not be aware of the impact of social media on their online professionalism as medical students, or they perceive they already have a certain online professional standard hence there is no need to make any change to their social media account including to make it private (Gomes, Butera, Chretien & Kind, 2017).

The tendency to choose this privacy option seemed to be dependent on age. Studies have found that the older adults were less likely to reveal information and to use privacy protection on Facebook, and as the age increases, they have no qualms about disclosing personal information and tend to make their social media account public (Afsahi, 2014; (Elueze & Quan-Haase, 2018; Kezer, Sevi, Cemalcilar & Baruh, 2016).

The complexity of the privacy option setting for social media accounts might be one of the reasons why they keep their account public. The other hypothesis was that older respondents in this study were already practicing their own set of online professional behavior conduct, hence the privacy setting may not seem relevant to them. The algorithm of social media makes the users connected to friends, family and colleagues and some overlapping between them is inevitable. Users can create different accounts to separate their personal and professional content but because of the connectivity and overlapping of contacts, this is not always easy (Logghe, Boeck, Gusani, Hardaway, Hughes, ..., & Leichtle, 2018; O'Hara, Fox & Donahue 2013).

Private accounts allow the user to partition personal information from their public followers. However, they do not provide a completely safe hideout for unprofessional behavior. The private content posted to social media may still become widely available due to various reasons such as data leaks, changes of terms and conditions, altered algorithms and public dissemination of previously private data (Barlow et al., 2015; Logghe et al., 2018). Health care professionals including medical students need to consider these loopholes during their interaction in social media even though they have made their social media account private.

The usage of social media is already part of the lifestyle in the current society. Hence, the boundary between socialising and studying or work may be blurred (Hughes et al., 2009; O'Connor, Zhang, Honey & Lee, 2021). However, health care professionals are obliged to maintain an appropriate doctor-patient relationship and boundaries in both the real and the virtual world (Borgmann, Cooperberg, Murphy, Loeb, N'Dow, Ribal, ..., & Wirth, 2018; Farnan et al., 2013). The results from item number 3 indicated that at least half of the students may

accept the friend requests and followers from patients. Is this an acceptable action for health care professionals and medical students? Accepting a friend's request from patients could be perceived as a good action because the doctors thought it could aid them to have a better understanding of patients hence leading to better patient management and treatment. At the same time, the doctors might want to be polite and avoid being offensive to the patient if they decline the request (Chretien, 2011). The issues that every health care professional and medical student needs to ponder before embarking on this, is their responsibility to maintain the appropriate doctor-patient relationship and putting patient's privacy and safety above other perceived benefits. Trust is one of the important elements in doctor-patient relationship (Chipidza, Wallwork & Stern, 2015; Logghe et al., 2018) and discovering the patient's activity using social media may threaten the trust needed for such a relationship and might have a negative impact on the patient's management and care (Clinton, Silverman & Brendel, 2010; Logghe et al., 2018).

Guidelines on how to use social media for health professionals have been reviewed by a few organisations and emphasis on patient's privacy and appropriate doctor-patient boundaries have been highlighted (American Medical Association, 2014; British Medical Association, 2018; Brasg, 2013; Hennessy, Smith, Greener & Ferns, 2019; Kind, 2015). Most guidelines do not encourage or prohibit doctors and medical students from accepting friend's request from patients or inviting them as their online friends. American College of Physicians (ACP) and the Federation of State Medical Boards (FSMB) also had issued a statement regarding the need for doctors to maintain professional boundaries and relationships with patients (Borgmann et al., 2018; Farnan et al., 2013). Few factors need to be considered if the doctors want to shift the interaction with patients to the online setting. Doctors should also learn the privacy setting, terms of reference, agreement and uphold tight privacy settings on their personal social media account. In circumstances where they need to create a professional account, it should be built with a clear sense of purpose or goal. As much as many doctors believe that the professional use of social media allows for beneficial information exchange and is useful in caring for patients, it is best to avoid being friends with patients on social media (Borgmann et al., 2018; Hughes et al., 2009).

Our results showed about 40-50% of medical students still did not understand the issue of privacy setting and professional relationship with patients during online interaction. This may be because half of our respondents are preclinical students, and have yet encountered patients in the clinical setting. Hence, they were not aware of the issue. Some may yet to see social media as part of their professional identity, hence cannot differentiate between public and private content. Again, education and awareness of this issue to our future doctors are very much in need.

Technologies have impacted the practice of medicine and more new technologies are being developed to improve healthcare systems. Social media has radically influenced the traditional way of communication between doctors and patients. It is an undeniable fact that healthcare benefits from the advancement of social media technology, however it also poses a unique challenge to the value of medical practices particularly medical professionalism. All health care professionals including medical students should be aware of these challenges and be vigilant whenever they use social media to avoid professional misconduct.

Limitation of the Study

This study has few limitations. First, it involved medical students from a single institution and it limits generalisation to other medical or health professional students and qualified medical doctors. Second, this study only measured self-reporting behavior of contents related to social media professionalism and their social media account content was not reviewed to check their actual online behavior. This may contribute to the information and recall bias as the respondents will only report their positive online behavior. For future research, we recommend conducting the study with a larger sample size involving other medical schools in Malaysia with more rigorous methods, including checking their social media sites for verification.

CONCLUSION

Most respondents in this study denied sharing any online content that can violate their medical professionalism and perceived themselves as still upholding their professionalism online. However, a significant proportion of students were still unsure about issues related to the privacy setting and doctor-patient boundaries on social media which are an important part of medical professionalism. Medical students are future doctors in training and are expected to practice the same professional values as doctors. Therefore, medical school administrators and medical educators need to provide the students not only with a clear guideline and policy related to online professional conduct, but more importantly with the framework and implementation of an effective teaching and learning to ensure medical students always uphold their medical professionalism, offline and online, throughout their career.

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