RESEARCH ARTICLE

Pharmacy students' perceptions and attitudes towards professionalism on social media: A cross-sectional study

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Abstract

Background: The objective of the study was to determine the perceptions and attitudes toward social media professionalism among pharmacy students according to gender and program year. **Methods:** An online survey was sent to pharmacy students. The survey contained two sections: a demographics section, and assessment of attitudes toward professionalism and accountability in using social media. **Results:** About 30% of female students disagreed on using social media for hiring decisions compared to 20% of male students. About 41% of female students agreed on the importance of editing social media profiles prior to applying for jobs, compared to 38% of male students. Male students (11%) agreed more than female students (4%) on taking pictures of others without their knowledge. Fifth-year students (85%) disagreed the most on posting descriptions of how to break school or job rules. **Conclusion:** Gender and program years have impacted the perceptions and attitudes toward social media professionalism.

Introduction

The use of social media has evolved over recent years in every aspect. People on social media can create, share, and discuss information and ideas in virtual communities and networks (Kogan *et al.*, 2015). It also can be used for educational purposes and for professional development (Alsuraihi *et al.*, 2016). Some people reported that they use social media to find medication-related information (Bahkali *et al.*, 2016).

E-professionalism is defined as **"**the way you engage yourself online in relation to your profession, including your attitudes, actions and your adherence to relevant professional codes of conduct" (Sowton, Connelly, & Osborne, 2016). Unprofessional use of social media could affect healthcare provider (HCP)-patient relationships, hiring decisions, and public opinions of professionals and their institutions. Gender differences may have a role in the level of engagement in social media. Females have shown more awareness about expected professional behaviour than males (Hall, Hanna, & Huey, 2013), and females were less likely to post differing comments about instructors, classmates, and clients on social media platforms than males (Kedrowicz, Royal, & Flammer, 2016). On the other hand, male students were more likely to present the information they would not want future employers, faculty members, or patients to see (Cain, Scott, & Akers, 2009). In addition, male students agreed more that social networks should be used for hiring and felt it was more justified for the employers to do an online search for residency candidates contrasted with females (Kogan *et al.*, 2015).

Perceptions on social media professionalism differ by programme year due to different experiences and exposures. In a study of veterinary students, posting pictures of other people without their permission was rated more acceptable by third-year students compared to other levels, whereas

posting comments about clinical cases on social media platforms was rated more acceptable by second-year students (Kedrowicz *et al.*, 2016). Third- and fourth-year nursing students disagreed more on using Facebook profiles to make hiring decisions but agreed more that Facebook activities could change the hiring opinions of some professionals. In addition, most first and second-year students reported that they had never posted information that they would not want a patient to view (Barnable, Cunning, & Parcon, 2018).

In Saudi Arabia, the use of social media has increased by 32% from January 2017 to January 2018, which is the highest percentage globally (Kemp, 2018). In 2017, a total of 75% of the Saudi population used social media, spending an average of 2 hours and 34 minutes per day, with WhatsApp being the most used platform, followed by YouTube, Facebook, Instagram, and Twitter (Kemp, 2018). To control the misuse of social media, the Saudi government developed an anti-cybercrime law in 2007 targeting incriminating behaviours such as using smartphones or cameras to violate the privacy of others, defamation, and hacking, which are behaviours that could be committed by students and others (The Official Gazette, 2007).

Social media platforms have increased every year, as have users of these platforms in Saudi Arabia. It has been suggested that anti-cybercrime laws might help to reduce inappropriate posts on social media platforms. Accountability, professionalism, and respect for others' privacy (colleagues, faculty members, patients) should always be considered before posting anything on social media. Not only due to national anti-cybercrime laws but also because of professional impact on the pharmacy students in the near future. Therefore, the objectives of this cross-sectional study were to determine perceptions and attitudes toward social media professionalism among pharmacy students at King Saud University and to assess differences in perceptions and attitudes according to gender and programme year.

Methods

Study design

This study was a cross-sectional study using an online survey to determine perceptions and attitudes toward social media professionalism among pharmacy students at King Saud University.

Participants

King Saud University is one of the leading universities in Saudi Arabia that enrols students from all regions across the country. Its pharmacy school was established in 1959, which makes it the first pharmacy school in Saudi Arabia. The pharmacy school at King Saud University offers undergraduate programme (PharmD) and postgraduate programmes (Master (MSc.) and Ph.D. in pharmacology, MSc. and Ph.D. in pharmacognosy, MSc. and Ph.D. in pharmaceutics, MSc. and Ph.D. in pharmaceutical chemistry, MSc. in quality control and MSc. in clinical pharmacy). In this study, female and male undergraduate pharmacy students in all years were included. Postgraduate students are usually sponsored by employers and tend to be more socially mature and older; therefore, they were excluded from the study.

Instrumentation

The questionnaire was developed based on the previous studies, Saudi culture, and college years (Cain *et al.*,2009; Bongartz *et al.*, 2011; Gettig, Lee, & Fjortoft, 2013; Ness *et al.*, 2014; Rocha & De Castro, 2014; Chisholm-Burns *et al.*, 2017). Some of the questions were modified by changing the questions from 'yes/no' to the Likert scale. Also, rephrasing and replacing some questions that are not applicable in Saudi Arabia, such as questions containing drinking in bars and questions that containing specific conference names. Also, adding questions that provide some details about demographics and years of the programme. Subsequently, the questionnaire was sent to three assistant professors in the college of pharmacy to validate the survey by face validity. The objective of the face validity is to evaluate questionnaire suitability and measurement appropriateness. These validators were asked for comments regarding the length of the questionnaire, similarity among the questions, arrangement and the clarity of the questions. The final version of the survey was sent as a pilot to a small number of students (n=10) to ensure there were no issues regarding duplication, clarity, and removing questions that do not serve the objectives of the study. Students were asked to send all of their comments to the authors. Those ten students were excluded from the analysis.

There are two sections in the survey. The first section contains demographic information such as age, gender, programme year, and questions that assess the individual's use pattern of social media, such as the most-used social media platforms, frequency of posting on social media platforms, and whether students identify themselves as pharmacy students or identify their pharmacy school or university on social media profiles. The second section was a Likert scale containing 14 statements that assess opinions and attitudes of pharmacy students toward online behaviours.

Sampling process

After getting the approval from the Institutional Review Board (E-18-3207), an email describing all the study objectives, the IRB approval number, authors contact information, and a link to the electronic survey was sent through the academic affairs office at the college of

pharmacy to all undergraduate students at King Saud University. A reminder email was sent to students one month later. Students' responses to the survey were voluntary and anonymous. The results of the survey were presented to all students during a research day at the college of pharmacy (an event, which happens every year at the end of the academic year).

Statistical analysis

Descriptive statistics were conducted using Stata software. Chi-square and Fisher's exact test were used as appropriate. Variables were classified as categorical variables except for age (continuous) and Likert scale items (rank order). Percentage and frequencies were calculated to present the categorical variables and rank order variables, and mean was calculated to present the age variable. A *p*-value of 0.05 or less was considered statistically significant.

Results

The online survey was sent to 836 pharmacy students, and a total of 239 students completed the survey, with a response rate of 29%. Female students contributed more than male students (Table I). The mean age of participants was 20.79 years. First-year students comprised 28% of participants, which was the highest percentage compared to other education programme years (Table I).

Thirty per cent (30.1%) of students discussed the theme of "social media professionalism" during university years, and this was reported most by first-year students (39.7%) and second-year students (36.5%). Almost all participants (98%) were using social media at the time of the survey. Twitter was the most used social media platform (75.6%), followed by Snapchat (65%) and YouTube (55.1%) (Table I). The purposes of using social media were either personal or professional, and the majority (59.4%) use social media for both purposes. Many participants (36.3%) spent more than or equal to five hours daily using social media platforms, and 36.3% of students post daily on social media. About 42% of participants identified themselves as pharmacy students and their pharmacy school or university on social media platforms. A summary of demographic characteristics and use patterns of social media of the participants are shown in Table I.

The results showed no significant difference between genders, demographic characteristics, and use pattern of social media, in discussing the "social media professionalism" theme during university years (*p*= 0.130), using social media platforms (*p*= 1), the purpose of using social media (*p*= 0.152), daily time spent on using social media (*p*= 0.506), frequently posting on social media (*p*= 0.166), and identifying themselves as pharmacy students or pharmacy school or both (*p*= 0.356). Moreover, there was no significant

difference between education programme years, discussing the "social media professionalism" theme during university years (*p*= 0.063), whether using social media platforms or not (*p*= 0.433), and purpose of using social media (*p*= 0.169).

Table I: Demographic characteristics and use pattern of social media of the participants

Questions	n (%)
Gender	
• Male	89 (37.24)
• Female	150 (62.76)
Programme year	
• 1st year in pharmacy school	68 (28.45)
• 2nd year in pharmacy school	52 (21.76)
• 3rd year in pharmacy school	57 (23.85)
• 4th year in pharmacy school	41 (17.15)
• 5th year in pharmacy school (internship)	21 (8.79)
What is/ are your most used social media platform(s)?	
• Twitter	177 (75.6)
• Snapchat	152 (65)
• YouTube	129 (55.1)
• Instagram	97 (41.5)
• LinkedIn	20 (8.5)
• Facebook	3 (1.3)
• Other	19 (7.8)
Has the theme "Social media Professionalism" been discussed at any moment during university years?	
• Yes	72 (30.13)
• No	167 (69.87)
Do you use social media platforms?	
• Yes	234 (97.91)
• No*	5 (2.09)
What is/are your purpose(s) of using social media platform(s)?	
• Professional only	5 (2.14)
• Personal only	90 (38.46)
• Professional and personal	139 (59.40)
What is the average time you spend using social media platforms daily?	
• < 1 hour	8 (3.42)
• 1 hour	7 (2.99)
• 2 hours	39 (16.67)
• 3 hours	41 (17.52)
• 4 hours	52 (22.22)
• ≥ 5 hours	85 (36.32)
• I don't use social media platforms daily	2 (0.85)
How frequently do you post on social media platforms?	
• Daily	85 (36.32)
• Weekly	63 (26.92)
• Monthly	59 (25.21)
• Never	27 (11.54)
Do you identify yourself as a pharmacy student or put your pharmacy school or university on any of your social media profiles?	
• Yes, as a pharmacy student, only	37 (15.81)
• Yes, pharmacy school or university only	5 (2.14)
• Yes, both as a pharmacy student and pharmacy school or university	98 (41.88)
• No	94 (40.17)

*If the student's answer is "no", it will skip questions that assess use pattern and go directly to questions that assess professionalism and accountability.

Accountability and professionalism according to gender

Attitudes toward accountability and professionalism while using social media platforms were compared between male students and female students, as shown in Table II. The results showed that female students (57.3%) agreed more than male students (41.6%) on the importance of using privacy settings on social media platforms to limit public access to personal information. About 88.7% of female students disagreed on taking pictures of colleagues or faculty members without their knowledge, compared to 73% of male students. There was a proximity of percentages (66.3% and 66%) of male and female students, respectively, disagreeing on posting descriptions of how to break school or job rules on social media. About 77% of students disagreed on posting emails or private conversations with colleagues or faculty members without their knowledge, with proximal results between male and female students (74.2% and 78.7%, respectively).

Regarding professionalism, about 56.2% of male students, in comparison to 50% of female students, believed that pharmacy students should be held to higher standards regarding the image they portray on social media platforms. Female students (30%) disagreed more than male students (20.2%) on the employer's use of social media profile information and/or postings when making a hiring decision. Male students (47.2%) agreed less than female students (58.7%) on writing on social media about having the best practice experience site and that they learned a lot on the site.

Accountability and professionalism according to the education programme year.

Table III shows the analysis of accountability and professionalism according to the education programme year. Fifth-year students (42.9%) agreed the least on accepting constructive criticism regarding their social media postings. First-year students (39.7%) disagreed the least on the nonimportance of carefully constructing postings to social media platforms. Fifth-year students (85.7%) disagreed the most on posting descriptions of how to break school or job rules on social media. Fourth-year students (82.9%) and fifth-year students (85.7%) agreed the most that photos, groups, postings, comments, and other information posted on social media platforms affect people's opinion of a professional healthcare provider. On the other hand, fourth-year students (63.4%) and fifth-year students (66.7%) disagreed the most on using students' social media presence as a measure of their professional conduct at college/university. Fourth-year students (41.5%) disagreed the most on reading and/or posting to social media while attending class or work, and fifth-year students (42.9%) disagreed the most on pharmacy

faculty members using social media to connect with them.

Discussion

Most academic institutions use social media either for official or unofficial purposes and yet many institutions do not have established policies and guidelines about the use of social media by its members/students. With this involvement and increased use of social media, students may post on social media platforms comments, photos, or other information that might affect their careers. There are 30 pharmacy colleges in Saudi Arabia, and to the best of our knowledge, this is the first study in Saudi Arabia that assesses attitudes of pharmacy students toward professionalism on social media platforms.

The study revealed that the most used social media platform among pharmacy students was Twitter, while previous studies showed that YouTube was the most popular platform among Saudis and Facebook (Kemp, 2019; Alsuraihi *et al.*, 2016). Also, previous studies found that the Facebook platform was the most used among pharmacy students in the United States and United Kingdom (Hall *et al.*, 2013; Ness *et al.*, 2014). These differences could be attributed to many factors. Many educational users recently created accounts on Twitter, pharmacy-related conferences and webinars are also announced on Twitter. Also, many well-known pharmacists and faculty professors from different pharmacy colleges in Saudi Arabia are active users of Twitter.

This study found that, despite the use of social media by most pharmacy students (98%), only 30.1% of students have discussed the theme of "social media professionalism" in classes during university years, and most of them were from first-year students and second-year students. This finding is similar to what was found in Rocha and De Castro, who studied the opinions of Brazilian medical students regarding online professionalism; they found that only 13.5% of students discussed the theme of "social media professionalism" in ethics class (Rocha & De Castro, 2014). Most of the students who reported that the theme of "social media professionalism" was discussed during university years were first-year students (39.7%), yet they agreed the most on posting emails or private conversations with colleagues or faculty members on social media without their knowledge. These results may encourage the college to review and update the content of the lectures of ethics course and increase offering workshops to the newly accepted students as well as to candidate pharmacy graduates.

Table II: Accountability and professionalism according to gender

Gender	Strongly disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly agree n (%)	Strongly disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly agree n (%)
Accountability items										
1. I am able to accept constructive criticism regarding my social media postings. $p = 0.488$						2. It is not important to carefully construct postings to social media platforms. $p = 0.135$				
Male	1 (1.12)	7 (7.87)	34 (38.20)	37 (41.57)	10 (11.24)	10 (11.24)	33 (37.08)	20 (22.47)	23 (25.84)	3 (3.37)
Female	5 (3.33)	21 (14.00)	51 (34.00)	54 (36.00)	19 (12.67)	24 (16.00)	51 (34.00)	48 (32.00)	21 (14.00)	6 (4.00)
3. It is important to use the privacy settings available on social media platforms to limit public access to personal information. $p = 0.02$						4. It is okay to post descriptions of how you broke school or job rules on social media. $p = 0.111$				
Male	5 (5.62)	8 (8.99)	39 (43.82)	21 (23.60)	16 (17.98)	38 (42.70)	21 (23.60)	20 (22.47)	10 (11.24)	0 (0.00)
Female	2 (1.33)	21 (14.00)	41 (27.33)	52 (34.67)	34 (22.67)	51 (34.00)	48 (32.00)	35 (23.33)	10 (6.67)	6 (4.00)
5. It is okay to take pictures of colleagues or faculty members without their knowledge. $p = 0.0001$						6. It is okay to post emails or private conversations with colleagues or faculty members without their knowledge. $p = 0.574$				
Male	38 (42.70)	27 (30.34)	14 (15.73)	10 (11.24)	0 (0.00)	47 (52.81)	19 (21.35)	16 (17.98)	7 (7.87)	0 (0.00)
Female	113 (75.33)	20 (13.33)	11 (7.33)	5 (3.33)	1 (0.67)	84 (56.00)	34 (22.67)	22 (14.67)	7 (4.67)	3 (2.00)
Professionalism items										
1. I believe pharmacy students should be held to higher standards regarding the image they portray on social media platforms. $p = 0.525$						2. An employer of pharmacy graduates should be able to use a prospective employee's social media platform profile information and/or postings when making a hiring decision. $p = 0.388$				
Male	2 (2.25)	3 (3.37)	34 (38.20)	26 (29.21)	24 (26.97)	11 (12.36)	7 (7.87)	39 (43.82)	22 (24.72)	10 (11.24)
Female	6 (4.00)	13 (8.67)	56 (37.33)	41 (27.33)	34 (22.67)	22 (14.67)	23 (15.33)	57 (38.00)	37 (24.67)	11 (7.33)
3. Photos, groups, postings, comments, and other information posted on social media platforms affect people's opinion of a professional healthcare provider. $p = 0.807$						4. It is important for a pharmacy student to edit his/her social media platform after graduation prior to applying for a job. $p = 0.008$				
Male	5 (5.62)	3 (3.37)	14 (15.73)	46 (51.69)	21 (23.60)	5 (5.62)	12 (13.48)	38 (42.70)	30 (33.71)	4 (4.49)
Female	5 (3.33)	8 (5.33)	28 (18.67)	71 (47.33)	38 (25.33)	13 (8.67)	27 (18.00)	48 (32.00)	35 (23.33)	27 (18.00)
5. It is okay to read and/or post to social media platforms while attending class or work (this does not include social media postings that are part of class or work assignments). $p = 0.619$						6. It is okay for a pharmacy faculty member to use social media to connect with you. $p = 0.197$				
Male	12 (13.48)	38 (42.70)	24 (26.97)	13 (14.61)	2 (2.25)	2 (2.25)	7 (7.87)	18 (20.22)	46 (51.69)	16 (17.98)
Female	22 (14.67)	52 (34.67)	39 (26.00)	33 (22.00)	4 (2.67)	10 (6.67)	21 (14.00)	32 (21.33)	58 (38.67)	29 (19.33)
7. The college/university can use a student's social media presence as a measure of his/her professional conduct. $p = 0.189$						8. A student writes on his/her public social media that he/she has the best practice experience site ever and that he/she is learning a lot. $p = 0.396$				
Male	21 (23.60)	26 (29.21)	28 (31.46)	12 (13.48)	2 (2.25)	2 (2.25)	7 (7.87)	38 (42.70)	32 (35.96)	10 (11.24)
Female	57 (38.00)	37 (24.67)	36 (24.00)	15 (10.00)	5 (3.33)	1 (0.67)	8 (5.33)	53 (35.33)	65 (43.33)	23 (15.33)

Table III: Accountability and professionalism according to the education programme year

Education Programme year	Strongly disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly agree n (%)	Strongly disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly agree n (%)
Accountability Items										
1. I am able to accept constructive criticism regarding my social media postings. $p = 0.674$						2. It is not important to carefully construct postings to social media platforms. $p = 0.511$				
1st year	3 (4.41)	6 (8.82)	26 (38.24)	25 (36.76)	8 (11.76)	9 (13.24)	18 (26.47)	24 (35.29)	14 (20.59)	3 (4.41)
2nd year	0 (0.00)	5 (9.62)	20 (38.46)	22 (42.31)	5 (9.62)	7 (13.46)	24 (46.15)	14 (26.92)	5 (9.62)	2 (3.85)
3rd year	0 (0.00)	7 (12.28)	18 (31.58)	25 (43.86)	7 (12.28)	9 (15.79)	24 (42.11)	14 (24.56)	9 (15.79)	1 (1.75)
4th year	2 (4.88)	6 (14.63)	14 (34.15)	15 (36.59)	4 (9.76)	6 (14.63)	12 (29.27)	11 (26.83)	11 (26.83)	1 (2.44)
5th year	1 (4.76)	4 (19.05)	7 (33.33)	4 (19.05)	5 (23.81)	3 (14.29)	6 (28.57)	5 (23.81)	5 (23.81)	2 (9.52)
3. It is important to use the privacy settings available on social media platforms to limit public access to personal information. $p = 0.01$						4. It is okay to post descriptions of how you broke school or job rules on social media. $p = 0.02$				
1st year	2 (2.94)	6 (8.82)	19 (27.94)	20 (29.41)	21 (30.88)	25 (36.76)	21 (30.88)	10 (14.71)	8 (11.76)	4 (5.88)
2nd year	3 (5.77)	6 (11.54)	12 (23.08)	24 (46.15)	7 (13.46)	22 (42.31)	14 (26.92)	15 (28.85)	1 (1.92)	0 (0.00)
3rd year	1 (1.75)	7 (12.28)	30 (52.63)	12 (21.05)	7 (12.28)	18 (31.58)	12 (29.27)	19 (33.33)	6 (10.53)	2 (3.51)
4th year	1 (2.44)	8 (19.51)	14 (34.15)	10 (24.39)	8 (19.51)	16 (39.02)	12 (29.27)	11 (26.83)	2 (4.88)	0 (0.00)
5th year	0 (0.00)	2 (9.52)	5 (23.81)	7 (33.33)	7 (33.33)	8 (38.10)	10 (47.62)	0 (0.00)	3 (14.29)	0 (0.00)
5. It is okay to take pictures of colleagues or faculty members without their knowledge. $p = 0.251$						6. It is okay to post emails or private conversations with colleagues or faculty members without their knowledge. $p = 0.204$				
1st year	42 (61.76)	11 (16.18)	7 (10.29)	7 (10.29)	1 (1.47)	31 (45.59)	17 (25.00)	12 (17.65)	5 (7.35)	3 (4.41)
2nd year	38 (73.08)	9 (17.31)	5 (9.62)	0 (0.00)	0 (0.00)	33 (63.46)	9 (17.31)	8 (15.38)	2 (3.85)	0 (0.00)
3rd year	30 (52.63)	13 (22.81)	8 (14.04)	6 (10.53)	0 (0.00)	31 (54.39)	12 (21.05)	12 (21.05)	2 (3.51)	0 (0.00)
4th year	26 (63.41)	9 (21.95)	5 (12.20)	1 (2.44)	0 (0.00)	19 (46.34)	12 (29.27)	6 (14.63)	4 (9.76)	0 (0.00)
5th year	15 (71.43)	5 (23.81)	0 (0.00)	1 (4.76)	0 (0.00)	17 (80.95)	3 (14.29)	0 (0.00)	1 (4.76)	0 (0.00)
Professionalism Items										
1. I believe pharmacy students should be held to higher standards regarding the image they portray on social media platforms. $p = 0.675$						2. An employer of pharmacy graduates should be able to use a prospective employee's social media platform profile information and/or postings when making a hiring decision. $p = 0.602$				
1st year	3 (4.41)	4 (5.88)	24 (35.29)	21 (30.88)	16 (23.53)	13 (19.12)	7 (10.29)	26 (38.24)	15 (22.06)	7 (10.29)
2nd year	1 (1.92)	4 (7.69)	25 (48.08)	12 (23.08)	10 (19.23)	4 (7.69)	6 (11.54)	26 (50.00)	15 (28.85)	1 (1.92)
3rd year	3 (5.26)	2 (3.51)	18 (31.58)	20 (35.09)	14 (24.56)	5 (8.77)	6 (10.53)	25 (43.86)	16 (28.07)	5 (8.77)
4th year	1 (2.44)	4 (9.76)	16 (39.02)	11 (26.83)	9 (21.95)	7 (17.07)	8 (19.51)	13 (31.71)	9 (21.95)	4 (9.76)
5th year	0 (0.00)	2 (9.52)	7 (33.33)	3 (14.29)	9 (42.86)	4 (19.05)	3 (14.29)	6 (28.57)	4 (19.05)	4 (19.05)
3. Photos, groups, postings, comments, and other information posted on social media platforms affect people's opinion of a professional healthcare provider. $p = 0.413$						4. It is important for a pharmacy student to edit his/her social media platform after graduation prior to applying for a job. $p = 0.06$				
1st year	4 (5.88)	3 (4.41)	13 (19.12)	30 (44.12)	18 (26.47)	6 (8.82)	13 (19.12)	26 (38.24)	14 (20.59)	9 (13.24)
2nd year	1 (1.92)	4 (7.69)	14 (26.92)	23 (44.23)	10 (19.23)	4 (7.69)	7 (13.46)	21 (40.38)	14 (26.92)	6 (11.54)
3rd year	2 (3.51)	2 (3.51)	10 (17.54)	30 (52.63)	13 (22.81)	1 (1.75)	11 (19.30)	27 (47.37)	12 (21.05)	6 (10.53)
4th year	2 (4.88)	1 (2.44)	4 (9.76)	25 (60.98)	9 (21.95)	3 (7.32)	8 (19.51)	7 (17.07)	19 (46.34)	4 (9.76)
5th year	1 (4.76)	1 (4.76)	1 (4.76)	9 (42.86)	9 (42.86)	4 (19.05)	0 (0.00)	5 (23.81)	6 (28.57)	6 (28.57)
5. It is okay to read and/or post to social media platforms while attending class or work (this does not include social media postings that are part of class or work assignments). $p = 0.03$						6. It is okay for a pharmacy faculty member to use social media to connect with you. $p = 0.086$				
1st year	6 (8.82)	25 (36.76)	22 (32.35)	12 (17.65)	3 (4.41)	2 (2.94)	8 (11.76)	13 (19.12)	30 (44.12)	15 (22.06)
2nd year	13 (25.00)	16 (30.77)	18 (34.62)	4 (7.69)	1 (1.92)	2 (3.85)	5 (9.62)	16 (30.77)	21 (40.38)	8 (15.38)
3rd year	10 (17.54)	25 (43.86)	10 (17.54)	11 (19.30)	1 (1.75)	1 (1.75)	5 (8.77)	13 (22.81)	29 (50.88)	9 (15.79)
4th year	4 (9.76)	13 (31.71)	9 (21.95)	15 (36.59)	0 (0.00)	5 (12.20)	3 (7.32)	5 (12.20)	19 (46.34)	9 (21.95)
5th year	1 (4.76)	11 (52.38)	4 (19.05)	4 (19.05)	1 (4.76)	2 (9.52)	7 (33.33)	3 (14.29)	5 (23.81)	4 (19.05)
7. The college/university can use a student's social media presence as a measure of his/her professional conduct. $p = 0.237$						8. A student writes on his/her public social media that he/she has the best practice experience site ever and that he/she is learning a lot. $p = 0.233$				
1st year	25 (36.76)	12 (17.65)	18 (26.47)	9 (13.24)	4 (5.88)	1 (1.47)	1 (1.47)	31 (45.59)	27 (39.71)	8 (11.76)
2nd year	17 (32.69)	14 (26.92)	16 (30.77)	5 (9.62)	0 (0.00)	1 (1.92)	4 (7.69)	17 (32.69)	23 (44.23)	7 (13.46)
3rd year	11 (19.30)	22 (38.60)	17 (29.82)	6 (10.53)	1 (1.75)	0 (0.00)	3 (5.26)	26 (45.61)	22 (38.60)	6 (10.53)
4th year	15 (36.59)	11 (26.83)	10 (24.39)	4 (9.76)	1 (2.44)	1 (2.44)	5 (12.20)	14 (34.15)	14 (34.15)	7 (17.07)
5th year	10 (47.62)	4 (19.05)	3 (14.29)	3 (14.29)	1 (4.76)	0 (0.00)	2 (9.52)	3 (14.29)	11 (52.38)	5 (23.81)

1st year= 1st year in pharmacy school, 2nd year= 2nd year in pharmacy school, 3rd year= 3rd year in pharmacy school, 4th year= 4th year in pharmacy school, 5th year= 5th year in pharmacy school (internship).

It is recommended to add policies and guidelines about using social media by pharmacy students in all academic institutions similar to guidelines published by other example universities (Communications & PR manager, 2016; Ward, 2018). As reported in this study, fifth-year students were the most to agree on writing publicly on social media about their practice and learning experiences. Thus, it is recommended to discuss social media professionalism in detail with students from all programme years, and before each training during university years, specifically for the fifth-year students to be exposed to different experiences and to the patients, faculty members, and healthcare providers they will encounter.

The results of this study revealed that about 62% of fifth-year pharmacy students identified themselves as pharmacy students on social media, compared to 31% of first-year students. The difference between the two programme years could be explained by the fact that the fifth year of the school is an internship year, and fifth-year students will be graduates soon and will want to apply for jobs.

Interestingly, this study found that female students disagreed more than male students on the employer's use of social media profiles for hiring decisions. This is understandable, considering that female participants in this study agreed more than male participants on the importance of using privacy settings on social media platforms to limit public access to personal information. This result is similar to the findings of previous studies that found male students used privacy settings online less than female students (Hall *et al.*, 2013). Moreover, female students disagreed more than male students on taking pictures of colleagues or faculty members without their knowledge. This could be attributed to the cultural value of privacy in Saudi Arabia. Similarly, 91% of participants in White *et al.* rated posting pictures of patients/clients on Facebook as unprofessional behaviour (White *et al.*, 2013).

This study also found that female students tend to share their clinical learning experiences on social media platforms more than male students. This behaviour was rated in Gettig and the authors (2013) as a professional behaviour by most participants. In social media, it is possible to come across faculty members' accounts; most participants in this study agreed on connecting with faculty members on social media, with male students agreeing more than female students, considering that females tend to be more private than males. Cain and the authors (2009) reported that most of the students didn't want faculty members to 'friend' them on Facebook.

Fourth-year students and fifth-year students agreed the most on the importance of editing social media platforms after graduation prior to applying for a job. This is similar to a previous study which showed that the majority of students (74%) planned on editing their social media platforms prior to applying for a job (Ness *et al.*, 2014). This result could explain the other findings of this study, where the fourth-year students and fifth-year students agreed the most that photos, groups, postings, comments, and other information posted on social media platforms affect people's opinion of a professional healthcare provider. Similar results were revealed by a previous study conducted on nursing students and found that third-year and fourth-year students agreed more than first-year and second-year students that Facebook activities might affect opinions of them as professionals (Barnable *et al.*, 2018).

The results of this study indicated that a high percentage of fourth-year students and fifth-year students disagreed on using students' social media presence as a measure of their professional conduct at college/university. These findings can be attributed to hiring decisions and the fact that the student participants of this study used social media for both personal and professional purposes.

This is considered the first study to assess pharmacy students' attitudes toward social media professionalism in Saudi Arabia. Knowing that the use of social media has increased dramatically in Saudi Arabia, which includes pharmacy students, colleges should be aware that students are using social media extensively. This study could increase pharmacy students' awareness about the impact of social media use on hiring decision-making, institutional reputation, and the relationship between health care professionals and the public, and it may highlight the need to update the curriculum to include the topic of the professional use of social media.

This study has some limitations. First, the response rate was not high; however, this is a frequent problem in all types of survey-based studies (Fan & Yan, 2010). Second, the study design is a cross-sectional study, which only provides a snapshot in time. Third, the survey was created solely for this study, so it is only content/face validated. Future studies that address these limitations and add more than one college are highly advisable. Furthermore, future studies that address whether social media use has impacted students' academic performance or not are needed.

In conclusion, perceptions and attitudes toward social media professionalism appeared to be affected by gender and programme year. The prevalent use of social media emphasizes the necessity of adding rules and regulations of using social media in the school curriculum.

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