

Examining social media and academic social network use, and trends in physician-patient communication via social media: a national study

 Deniz Gürler

Samsun Training and Research Hospital, Department of Orthopaedics and Traumatology, Samsun, Turkey

Cite this article as: Gürler D. Examining social media and academic social network use, and trends in physician-patient communication via social media: a national study. J Health Sci Med 2022; 5(5): 1259-1266.

ABSTRACT

Introduction: In the history of the internet, social media occupy an exceptional place because they bring about sociological changes and cause things that will influence the course of history. It has become inevitable to conduct a study that examines the changes in the relationship between academic social networks and online patient-physician relationships, which have become widespread in recent years, especially among physicians. This study attempted to address this deficiency.

Material and Method: An online survey was created on Google Forms that included questions about physicians' use of social and academic media networks and their communication habits with online patients. Age, gender, medical specialty and workplace, social media use, academic social networks usage, and relationships with patients via social media were analyzed.

Results: Daily social media usage was significantly associated with age and medical specialty. Participants aged 40-50 and Basic Medic Science Consultants were least likely to use social media. The use of Facebook was the lowest among those under 30 (12.2%). Among those under 30, the use of LinkedIn was deficient (2.0%). Google Scholar was the most frequently used academic social network (38.5%). Surgical specialists were more likely to share medical content. Under 30 and over 50 were more likely to share their medical titles on social media than other groups. The percentage of those who reported having also physically examined the patient during online communication was 64.5%. This high rate is by no means negligible. Patients' most frequent responses to online communication requests were via WhatsApp (80.3%). The under-30 age group was found to have less contact with patients on social media.

Conclusion: According to the results of the study, the use of the academic social network is lower than expected, even among academically active participants. The fact that Facebook usage is significantly lower among those under 30 suggests that Facebook is outdated as a social medium for young physicians. Participants in university hospitals, private clinics, and those under 40 use social media differently than other groups. More online patient communication is an important advance. It is also significant that the number of studies has increased after online communication. If investments are made in this topic, it can be expected that a substantial part of patient-doctor relationships will be handled online soon. However, social media studies wear out quickly, so they should be repeated frequently.

Keywords: Social media, academic social network, physician-patient communication

INTRODUCTION

At the University of California, LA, Charley Kline attempted to establish a connection between two computers through the servers of ARPANET at 10:30 p.m. on October 29, 1969 (1). The attempt, which ended with "LO..." (Login), is considered the first internet connection (first online connection). The Big Bang of the internet was not long ago. However, technological development has led to a sociological situation that exceeds all expectations. Over the past decade, the single front-runner in this regard has been social media and the social life it has shaped. No

one underestimates the impact of social media anymore, claiming that it is a virtual environment.

The internet is an online network where computers can communicate. Although initial purpose of internet was military and national security concerns, scientists later developed it with the foresight that it would create an infrastructure for more specific and advanced applications. The additions and developments of the following years are filled with stories about internet use and facilitating access to information. Its availability via mobile data networks and cell phones makes its potential power undeniable. It is

expected that a technology that has penetrated so far into human life will also influence social life. Therefore, social media is a natural concomitant of the internet. Social media platforms for academics can also be seen as another natural consequence of social media.

The modern social media platforms (Facebook, LinkedIn, Twitter, and Reddit) established after 2003 had a structure that allowed people to reach each other easily. With the new generation of social media, sharing pictures, videos, and audio is more important, such as Instagram, Pinterest, Snapchat, and TikTok, which emerged after 2010 (2). Regardless of these developments, the evolution of Academic Social Networks (ASNs) is older than previously thought. ASNs were a necessity long before social media. However, with the spread of social media, the gap was filled with Researchgate and Academia, founded in 2008 (3).

Although there are several articles on physicians' use of social media, use of ASNs, and communication between patients and physicians via such social media, no paper simultaneously examines social media, ASNs, and online communication with patients. This study aims to fill this gap.

MATERIAL AND METHOD

The study was conducted under the Declaration of Helsinki and approved by the Institutional Ethics Committee of Samsun Training and Research Hospital (Date: 01.12.2021, Decision No: GOKA/2021/19/1). All procedures were carried out under the ethical rules and the principles of the Declaration of Helsinki.

The study data were collected prospectively using a 15-question questionnaire created with Google Forms (4). Invitations were sent to the physicians to participate in the study between January 15, 2022, and February 20, 2022, via WhatsApp, Facebook, and e-mail groups.

Gender, length of service, age (under 30 years, 30-40 years, 40-50 years, over 50 years), medical specialties (General Practitioner (GP), Family Physician (FP), Occupational Medicine Physician (OMP), Basic Medical Science Physician (BMSP), Clinical Medical Science Physician (CMSP), Surgical Medical Science Physician (SMSP), Research Assistant (RA), Academic Staff (AS)), and the institutions and locations where they work (Public Hospital and Health Institution (PHHI), University Clinic (UC), Educational and Research Hospital and Clinic (EEHC), Private Hospitals and Private Clinic (PHPC)) were recorded.

Participants were asked about their daily use of social media (less than 1 hour, 1-2 hours, 2-3 hours, and more than 3 hours). They were asked about their social media accounts (WhatsApp, Facebook, Instagram, YouTube, and Twitter) and academic social networks (LinkedIn, Vumedi, Researchgate, Academia, and Google Scholar). Participants were asked if their social media accounts had

a medical title. It was also investigated whether another social media account was used for medical activities.

Likert scale questions were used to examine whether they shared medical information, medical images, and workplace. Communication with patients via social media and responses to their questions were discussed. The social media through which patients were contacted was examined. It was questioned whether the patients with online communication were subsequently reviewed and treated using traditional methods.

Statistical Analysis

It was decided to use only age data because the length of service and age on the form referred to the same demographics. The data from 361 individuals who agreed to participate in the study were transferred to a data table and then statistically were analyzed using the SPSS 26 software (IBM Corp., Armonk, NY, USA).

Frequencies and frequency tables were created for all variables. Descriptive statistics explored. The relationship between the duration of social media use and gender, age, specialization, and workplace was examined. The relationship between the academic social network and social media account usage and gender, age, specialization, and workplace was examined. The relationship between online medical sharing with gender, age, specialty, and workplace was examined. The relationship between gender, age, specialty, and workplace was examined regarding whether they communicated with patients via social media and received care via social media. The Mann-Whitney U test and the Kruskal-Wallis test were used for data analysis. The one-way ANOVA and the Tamhane test were used for post hoc analysis. The relationship between questions with multiple responses and other variables was analyzed by cross-tabulation.

RESULTS

Of the 361 individuals who participated in the study, 163 were women (45.2%), and 198 were men (54.8%)-the distribution by age, specialty, and place of work is shown in **Table 1**. Comparing the data in the Turkish Health Statistics in 2019, (the latest published study) from the Ministry of Health of the Republic of Turkey (5) with the distributions in our research, we can assume that the study series reflects physicians throughout Turkey (**Table 2**). It was found that daily use of social media was significantly related to age ($P < .000$) and specialty ($P = .003$) but not to gender ($P = .541$) and workplace ($P = .333$). Among the groups, it was found that those aged 40-50 had the lowest daily use of social media. Compared to the other groups, participants under 40 had higher social media use (**Table 3**). Posthoc analyses showed that BMSCs used social media significantly less than the other groups, and those RAs used social media the most, considering their areas of expertise.

Table 1. Percentages of gender, age, specialization, and workplace

Gender	n	%
Female	163	45.20%
Male	198	54.80%
Age		
30↓	49	13.60%
30-40	38	10.50%
40-50	121	33.50%
50↑	153	42.40%
Specialty		
GP,FP,OMP	86	23.80%
BMSP	13	3.60%
CMSP	83	23%
SMSP	102	28.3%
RA	56	15.50%
AS	21	5.80%
Workplace		
PHHI	90	24.90%
UC	72	19.90%
EEHC	99	27.40%
PHPC	100	27.70%

Note. General Practitioner (GP), Family Physician (FP), Occupational Medicine Physician (OMP), Basic Medical Science Physician (BMSP), Clinical Medical Science Physician (CMSP), Surgical Medical Science Physician (SMSP), Research Assistant (RA), Academic Staff (AS), Public Hospital and Health Institution (PHHI), University Clinic (UC), Educational and Research Hospital and Clinic (EEHC), Private Hospitals and Private Clinic (PHPC)

Table 2. Comparison of national data with study data

	Study Data		Turkish Health Statistic 2019*	
	n	%	n	%
GF, FP, OMP	86	23.8	46843	29.1
BMSP, CMSP, SMSP, AS	219	60.7	85199	53
RA	56	15.5	28768	17.9
	361		160810	
	n	%	n	%
PHHI, EEHC	189	52.4	97145	60.4
UC	72	19.9	33750	21
PHPC	100	27.7	29915	18.6
	361		160810	

General Practitioner (GP), Family Physician (FP), Occupational Medicine Physician (OMP), Basic Medical Science Physician (BMSP), Clinical Medical Science Physician (CMSP), Surgical Medical Science Physician (SMSP), Research Assistant (RA), Academic Staff (AS), Public Hospital and Health Institution (PHHI), University Clinic (UC), Educational and Research Hospital and Clinic (EEHC), Private Hospitals and Private Clinic (PHPC). * Turkish Health Statistics 2019 (the latest published study) by the Ministry of Health of the Republic of Turkey

Table 3. Age-social media usage crosstabulation

Age		less than 1 hour	1-2 hour	2-3 hour	over 3 hour	
		n	%	n	%	
under 30	n	2	22	20	5	49
	%	4.10%	44.90%	40.80%	10.20%	100.00%
30-40	n	6	11	15	6	38
	%	15.80%	28.90%	39.50%	15.80%	100.00%
40-50	n	23	73	17	8	121
	%	19.00%	60.30%	14.00%	6.60%	100.00%
over 50	n	26	67	29	31	153
	%	17.00%	43.80%	19.00%	20.30%	100.00%
Total	N	57	173	81	50	361
	%	15.80%	47.90%	22.40%	13.90%	100.00%

There was no significant difference between genders when analyzing responses to the question of having medical identities and medical positions (medical titles) on their social media accounts (P=.107). However, there was a significant association between age (P<.000), specialty (P=.027), and work location (P=.050). In posthoc analyses, participants under 30 and over 50 were more likely to report their job titles on social media than other groups (Table 4). Among other groups, SMSPs used significantly fewer medical titles than others did. Similarly, PHPC and OMP used significantly fewer medical titles on social media.

Table 4. Age-medical title sharing crosstabulation

Age		Yes	No	
		n	%	
Under 30	n	15	34	49
	%	30.6%	69.4%	100.0%
30-40	n	17	21	38
	%	44.7%	55.3%	100.0%
40-50	n	61	60	121
	%	50.4%	49.6%	100.0%
Over 50	n	90	63	153
	%	58.8%	41.2%	100.0%
Total	N	183	178	361
	%	50.7%	49.3%	100.0%

The reliability of questions about sharing medical information and medical images on social media accounts was examined and found to have Cronbach $\alpha = .648$. After reviewing the habit of sharing medical posts on social media, it was found that there was no association with gender (P=.484). They were found to differ significantly by age (P=.006), specialty (P<.000), and workplace (P<.000). Post-hoc reviews found that under-30s posted less medical content on social media than over-40s. According to their specialization, BMSPs and ASs share minor than the others. SMSPs share more with all other groups. CMSPs share more than other groups (compared with RAs, BMSPs, and AS). Groups working in PHPC share more than groups working in EEHC and UCs (Table 5).

When examining the responses to the questions about answering medical questions from patients on social media and examining these patients, it was found that there was no association with gender (P=.606). However, it was found that there were differences between age (P<.000), specialties (P<.000), and workplace (P<.000) in responding to patient questions on the internet and the personal relationship between the patient and the physician. 63/361 (17.5%) of physicians reported that they never responded to communication requests from online patients. The under 30-age group was found to have less contact with patients via social media than all other groups. The 30-to-40-year-old group has fewer

relationships with patients via social media than the 40-and-older group. GPs had less contact with patients via social media than CMSPs and SMSPs, and RAs had less contact with patients than other groups. Participants from UCs and EEHC reported less contact with patients online than other groups, and those who worked in PHPC did more than others (Table 6). The proportion of those who reported that they also physically examined the patient with communication online was 233/361 (64.5%). This rate is by no means negligible.

Table 5. According to medical specialty, a comparison of physicians' habits of sharing medical information and photos on their social accounts

Multiple comparisons					
	Mean difference	Std. error	Sig.	95% Confidence interval	
				Lower bound	Upper bound
GF, FP, OMP					
BMSP	0.28205	0.13962	0.590	-0.1850	0.7491
CMSP	-0.25301	0.09704	0.140	-0.5414	0.0353
SMSP	-.27124*	0.09139	0.050	-0.5423	-0.0002
RA	0.11905	0.08514	0.932	-0.1346	0.3727
AS	0.23810	0.12125	0.586	-0.1414	0.6176
BMSP					
GF, FP, OMP	-0.28205	0.13962	0.590	-0.7491	0.1850
CMSP	-.53506*	0.14431	0.019	-1.0100	-0.0601
SMSP	-.55329*	0.14057	0.013	-1.0218	-0.0848
RA	-0.16300	0.13659	0.986	-0.6259	0.2999
AS	-0.04396	0.16158	1.000	-0.5633	0.4753
CMSP					
GF, FP, OMP	0.25301	0.09704	0.140	-0.0353	0.5414
BMSP	.53506*	0.14431	0.019	0.0601	1.0100
SMSP	-0.01823	0.09840	1.000	-0.3103	0.2739
RA	.37206*	0.09263	0.001	0.0960	0.6481
AS	.49111*	0.12662	0.005	0.0985	0.8838
SMSP					
GF, FP, OMP	.27124*	0.09139	0.050	0.0002	0.5423
BMSP	.55329*	0.14057	0.013	0.0848	1.0218
CMSP	0.01823	0.09840	1.000	-0.2739	0.3103
RA	.39029*	0.08668	0.000	0.1325	0.6481
AS	.50934*	0.12234	0.003	0.1274	0.8913
RA					
GF, FP, OMP	-0.11905	0.08514	0.932	-0.3727	0.1346
BMSP	0.16300	0.13659	0.986	-0.2999	0.6259
CMSP	-.37206*	0.09263	0.001	-0.6481	-0.0960
SMSP	-.39029*	0.08668	0.000	-0.6481	-0.1325
AS	0.11905	0.11774	0.997	-0.2526	0.4907
AS					
GF, FP, OMP	-0.23810	0.12125	0.586	-0.6176	0.1414
BMSP	0.04396	0.16158	1.000	-0.4753	0.5633
CMSP	-.49111*	0.12662	0.005	-0.8838	-0.0985
SMSP	-.50934*	0.12234	0.003	-0.8913	-0.1274
RA	-0.11905	0.11774	0.997	-0.4907	0.2526

*. The mean difference is significant at the 0.05 level. General Practitioner (GP), Family Physician (FP), Occupational Medicine Physician (OMP), Basic Medical Science Physician (BMSP), Clinical Medical Science Physician (CMSP), Surgical Medical Science Physician (SMSP), Research Assistant (RA).

Table 6. Comparing physicians' habits of communicating and answering online patient questions depending on where they work.

	Multiple Comparisons				
	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
PHHI					
UC	.49167*	0.13820	0.003	0.1227	0.8607
EEHC	.39697*	0.11652	0.005	0.0871	0.7068
PHPC	-.63778*	0.11719	0.000	-0.9494	-0.3262
UC					
PHHI	-.49167*	0.13820	0.003	-0.8607	-0.1227
EEHC	-0.09470	0.13992	0.984	-0.4681	0.2787
PHPC	-1.12944*	0.14048	0.000	-1.5043	-0.7546
EEHC					
PHHI	-.39697*	0.11652	0.005	-0.7068	-0.0871
UC	0.09470	0.13992	0.984	-0.2787	0.4681
PHPC	-1.03475*	0.11922	0.000	-1.3516	-0.7179
PHPC					
PHHI	.63778*	0.11719	0.000	0.3262	0.9494
UC	1.12944*	0.14048	0.000	0.7546	1.5043
EEHC	1.03475*	0.11922	0.000	0.7179	1.3516

*. The mean difference is significant at the 0.05 level. Note. Public Hospital and Health Institution (PHHI), University Clinic (UC), Educational and Research Hospital and Clinic (EEHC), Private Hospitals, and Private Clinic (PHPC).

While WhatsApp was the most used by 352/361 (97.5%), Twitter was considered the least used social media by 154/361 (42.7%) (Table 7). When the distribution by gender was examined, there was no difference between WhatsApp, Facebook, and Instagram users, but it was found that the use of Twitter and YouTube was more common among men. It was calculated that Twitter was used 1.82 times higher (48/154, 29.4% women, 106/154, 53.5% men) and YouTube 1.3 times higher (94/242, 57.7% women, 148/242, 74.7% men) by men. Facebook usage was lowest among those under 30 (6/49, 12.2%). Among YouTube users, the under-30 age group had the highest frequency at 45/49 (90.8%), while the 40-50 age group had the lowest frequency at 59/121 (48.8%). The percentage of RAs was lowest among Facebook users 10/56 (17.9%). RAs 45/56 (80.4%) and SMSPs 85/102 (83.3%) had higher Instagram usage rates. ASs 17/21 (81.0%) and RAs 53/56 (94.6%) were the most frequent users among YouTube users and Twitter users 34/56 (60.7%). Those working at UCs had the lowest Facebook use, 24/72 (33.3%). University physicians used Instagram 58/72 (80.6%), and YouTube 65/72 (90.3%) were the top usage scores. Twitter was used the least by PHPC participants 26/100 (26.0%).

The most striking thing about using ASN is that Vumedi was never indicated as an answer. Google Scholar was

the most frequently used, 139/361 (38.5%). Those who never used ASN were 158/361 (43.8%). Among men, Researchgate was used 1.72 times higher (21/65, 12.9% women, 44/65, 22.2% men) and Academia 2.34 times higher (19/73, 11.7% women, 54/73, 27.3% of men). Physicians under 30 were particularly low on LinkedIn 1/86 (2.0%). Among those over 50, Researchgate was the least used ASN 19/65 (12.4%). It was found that the under 40 groups used Google Scholar frequently 52/87 (59.77%). 16/56 (28.6%) of RAs and 3/21 (14.3%) of AS did not use ASN. BMSPs use only LinkedIn 7/13 (53.8%) and Google Scholar 13/13 (100.0%). Among those who did not use ASN, the percentage was highest in the group of GP, FP, and OMP 56/86 (65.1%) **Table 8.**

We can say that UC participants use all ASN accounts except LinkedIn (Researchgate 30/72, 41.7%, Academia 24/72, 33.3%, Google Scholar 53/72, 73.6%). We found that physicians in PHPC ranked last in the usage of Researchgate 4/100 (4.0%) and Academia 11/100 (11.0%).

The percentage of physicians who did not have a separate social media account for medical activities was 252/361 (69.8%). The least preferred account types were YouTube 12/361 (2.4%) and Twitter 9/361 (2.5%). Personal websites 65/361 (18.0%) and Instagram 57/362 (15.8%) were the preferred individual medical social media accounts. Men's preference for medical social media was 2.1 times higher for Facebook (13/46, 8.0% women, 33/46, 16.7% men) and 1.8 times higher for Instagram (18/57, 11.0% women, 39/57, 19.7% men). Those under 40 who did not have an additional medical social media account were 78/87 (89.7%). It was noted that nine individuals with a Twitter account and eight with a YouTube account were between 40 and 50 years old. It was found that there were no medical social media accounts among BMSPs and AS. Only one person had such an account among RAs, and 69/72 (95.8%) of the UC participants had no other social media accounts. 40/100 (40%) of participants in PHPC had personal websites.

The patients' most frequent responses to online communication requests were via WhatsApp 290/361 (80.3%). All nine doctors who interacted with patients on Twitter were over 50 years old and female. CMSPs 76/83 (91.6%) and SMSPs 94/102 (92.2%) were most likely to communicate with patients online. Only half of the RAs prefer to answer patient questions. UC physicians 25/72 (34.7%) and physicians in EEHC 20/99 (20.2%) are least likely to respond.

Table 7. Percentages of social media and academic social network usage

	n	%	Digital2022*
Social media			
WhatsApp	352	97.50%	81%
Facebook	202	56.00%	76%
Instagram	251	69.50%	83%
Twitter	154	42.70%	61%
Youtube	242	67.00%	90%
Academic social media			
LinkedIn	86	23.80%	32%
Researchgate	65	18.00%	
Academia	73	20.20%	
Google Scholar	139	38.50%	
Vumedi	0	0.00%	
None	158	43.80%	

Note. *Digital2022 (wearesocial.com): Turkey Social Media Usage 2022

Table 8. Academic social media usage crosstabulation for speciality

		Speciality-ASN Crosstabulation					
		LinkedIn	Researchgate	Academia	Google Scholar	None	
Specialty	n						
	%						
GF, FP, OMP	n	23	0	7	10	56	86
	%	26.70%	0.00%	8.10%	11.60%	65.10%	
BMSP	n	7	0	0	13	0	13
	%	53.80%	0.00%	0.00%	100.00%	0.00%	
CMSP	n	30	12	11	28	38	83
	%	36.10%	14.50%	13.30%	33.70%	45.80%	
SMSP	n	22	22	34	34	45	102
	%	21.60%	21.60%	33.30%	33.30%	44.10%	
RA	n	1	14	9	38	16	56
	%	1.80%	25.00%	16.10%	67.90%	28.60%	
AS	n	3	17	12	16	3	21
	%	14.30%	81.00%	57.10%	76.20%	14.30%	
Total	N	86	65	73	139	158	361

Note. General Practitioner (GP), Family Physician (FP), Occupational Medicine Physician (OMP), Basic Medical Science Physician (BMSP), Clinical Medical Science Physician (CMSP), Surgical Medical Science Physician (SMSP), Research Assistant (RA), Academic Staff (AS).

DISCUSSION

The main shortcoming of the study is that it targets groups that already use the internet and social media. The Google form used in this study and the way this form is submitted to the relevant pollsters is online, so participants who already use the internet and social media can participate in this study. Therefore, although the study appears to have a weakness in this regard, we do not believe that it is a weakness. We still cannot reach physicians who do not use the internet or do not use social media, and we cannot know if they have an idea about ASN. Nevertheless, it does not seem possible that a physician not already using traditional social media could know about ASN. Therefore, the study has no weak points in this regard.

Comparing the latest published data from the Ministry of Health of the Turkish Republic in 2019 with the distribution in the study group, we think that the physician series in the study reflects the distribution of physicians in Turkey in a national sense, and the data can be considered nationally significant. For this reason, we think that with this study, physicians in Turkey provide information about social media use, ASN use, and online communication with patients across the country.

The wearesocial.com website publishes annual statistics on global internet usage, social media usage, internet advertising, and brands. Looking at the January 2022 data, 67.1% of the world's population (7.91 billion) has at least one phone. In addition, 62.5% are internet users, and 58.4% are social media users. The average daily use of social media in Turkey was calculated to be 2 hours and 27 minutes. It can be concluded that physicians use social media less than the general average, as the option of using social media for 1-2 hours is the most common response with 47.9% (6).

37/49 (75.5%) of those under 30 are RAs, 37/56 (66.1%) of RAs are under 30, and 12/38 (31.6%) are in the 30-40 age group, suggesting that the data derived from those under 30 should be strongly associated with RAs. When determining demographic groups in internet and social media use studies, it is common to examine the (18-29), (30-49), (50-64), and over 65 age groups. However, we found that the age groups under 30, (30-40), (40-50), and over 50, which we compiled according to our study and occupational group, did not match the data in this routine demographic structure. In particular, the data for the 40-50 age group was inconsistent in general social media use studies in the 30-49 age group. We attribute this to the study being conducted with a specific occupational group.

We can assume that the under-30s and RAs clearly state their medical identities and titles on their social media

accounts. Physicians in this group have the lowest rate of additional social media accounts for their medical activities. We believe they do not mind disclosing their medical identities on their primary social media accounts. We think the low rate of medical identity and title usage in PHPC is that physicians working there do not see the need to disclose such a medical identity because private hospitals already engage in the promotional activities. This is also supported by the high rates of using additional social media accounts for medical activities in this group. There is no meaningful answer that SMSPs share fewer medical identities and titles. 40% of this group work in private hospitals, which could be an answer for the reasons already explained. However, although 41/102 (40.2%) of CMSPs work in private hospitals, no such underutilization was found. Thus, there is no statistically significant explanation.

Men are 1.3 times more likely to prefer YouTube and 1.82 times more likely to use social media than women (YouTube male 53.9%, female 46.1%, social media usage male 56.4%, female 46.1%); these findings are not consistent with previous findings, but they are significant. Among the under 30 years old (12.2%) and RAs (17.9%), these usage rates are much lower than the use of social media on Facebook in Turkey (76%). We can interpret this to mean that Facebook is now a stale platform for the younger generation of physicians.

Oge et al. (7) and Imran MK et al. (8) published data showing that social media can be used for information sharing and exchange in social sciences. Brown J et al. (9) have pointed out the ethical problems in professional relationships in patients' online communications with physicians after the proliferation of social media. The fact that von Muhlen M et al. (10) published their review paper on social media in 2012 and that only Facebook and Twitter were the main topics means that, given the rapid developments in social media and on the internet, even a 10-year-old article that can be considered new is outdated.

The purpose of academic and educational use of social media is quite different from that of traditional social media. Academic staff, who have long used various social media platforms, began to require more specific social media options when those platforms were insufficient. For this reason, ASN platforms have found many users over the past decade. The platforms that correspond to ASN and have been used more frequently in recent years, Academia, Reserachgate, LinkedIn, Vumedi, and Google Scholar, could be included in the study questions. It is not possible to be a unique platform that meets all needs. Communication and sharing are possible with the forum options at Researchgate. Since LinkedIn is not only a medical and academic network that offers a broader range

of network usage. Instant direct messaging on LinkedIn provides more benefits than other academic network platforms by creating standard networks with other professionals. Google Scholar features easy accessibility to all other acquaintances across the Google platform.

It is remarkable that physicians participating in the study do not use the Vumedi platform, which has more than 450 thousand members among physicians (11) and where educational videos and presentations are shared. It is significant that LinkedIn, a platform specializing only in business relationships and sectoral networks, is hardly used by physicians under 30. This can partly be explained because the platform has a sectoral rather than academic infrastructure. Understandably, the private hospitals and clinics group has very few members, as platforms such as Researchgate and Academia are focused on sharing scientific articles, as shown in the paper by Meishar-Tal et al. (12). Academic concerns are not the primary purpose of private hospitals. It is hugely concerned that two out of seven residents and one out of six faculty members do not use ASN. 18/77 (23.4%) of RAs and AS expected to be closer to academic life do not use ASN. This can be explained in two ways: Awareness of ASN is not yet sufficiently developed, or academic members continue to build their academic networks using traditional methods.

About a third of physicians have a second social media account for their medical activities. Nearly half of surgical physicians require social media accounts for their additional medical activities. It is a well-known fact that surgical physicians have been using social media visually in recent years. Accordingly, the need for other media accounts is higher in this group.

There is a clear boundary between physicians under 40 and physicians over 40 when answering patients' medical questions on social media. Those under 40 are the least responsive group, which can be explained by the high percentage of RAs in this group. The high proportion of PHPC in these groups may explain that CMSPs and SMSPs communicate more with patients online than BMSPs. The fact that commercial interests can explain why PHPC participants share more than other groups.

CONCLUSION

The study shows that the use of ASN is still insufficient. The high rates of online communication between patients and physicians suggest that more social networking will soon be needed in the medical field than expected. The social media behaviors of physicians under 40 and physicians working in university clinics and private hospitals differ significantly from other groups. Studies with broad participation and deeper analysis are needed to confirm this information and

conduct detailed analyzes. However, it is clear that the data is valid only for Turkish physicians, and further studies in broader regions are needed. It should be understood that the information in this study will be outdated in ten years at the latest, and such studies should be conducted routinely.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by the Institutional Ethics Committee of Samsun Training and Research Hospital (Date: 01.12.2021, Decision No: GOKA/2021/19/1).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The author has no conflicts of interest to declare.

Financial Disclosure: The author declared that this study had no financial support.

Author Contributions: The author declares that he has all participated in the paper's design, execution, and analysis and that he has approved the final version.

REFERENCES

1. Charley Kline Sends the First Message Over the ARPANET from Leonard Kleinrock's Computer : History of Information [Internet]. [cited 2022 May 3]. Available from: <https://www.historyofinformation.com/detail.php?entryid=1108>
2. The Evolution of Social Media: How Did It Begin and Where Could It Go Next? [Internet]. Maryville Online 2020 [cited 2022 May 3]. Available from: <https://online.maryville.edu/blog/evolution-social-media/>
3. Lawal N. Top Five Academic Social Networking Sites for Scholars and Students [Internet]. Medium 2017 [cited 2022 May 3]. Available from: <https://medium.com/@NurdinLawal/top-five-academic-social-networking-sites-for-scholars-and-students-5b146e674f84>
4. Doktorların Sosyal ve Akademik Sosyal Medya Kullanımı, Sosyal Medya Yardımı ile Hastalarıyla İletişim Kurması [İnternet]. Google Docs. [cited 2022 May 3]. Available from: https://docs.google.com/forms/d/e/1FAIpQLSePohU0bYNTpscHlyGTlarY8kf6ixPpOjzvXF51tSrNuRax5w/viewform?usp=send_form&usp=embed_facebook
5. Sağlık Bakanlığı TC. Sağlık İstatistikleri Yıllığı 2019 Yayınlanmıştır [Internet]. T.C. Sağlık Bakanlığı. [cited 2022 May 3]. Available from: <https://www.saglik.gov.tr/TR,84966/saglik-istatistikleri-yilligi-2019-yayinlanmistir.html>
6. DIGITAL 2022: Another Year Of Bumper Growth [Internet]. We Are Social UK 2022 [cited 2022 May 3]. Available from: <https://wearesocial.com/uk/blog/2022/01/digital-2022-another-year-of-bumper-growth-2/>
7. Güler ÖGE. Akademik Personelin Akademik Sosyal Ağları Kullanım Düzeyi: Anadolu Üniversitesi 2013; 6.
8. Imran MK, Iqbal SMJ, Aslam U, Fatima T. Does social media promote knowledge exchange? A qualitative insight. Manag Decis 2019; 57: 688-702.
9. Brown J, Ryan C, Harris A. How Doctors View and Use Social Media: A National Survey. J Med Internet Res 2014; 16: e267.

10. von Muhlen M, Ohno-Machado L. Reviewing social media use by clinicians. *J Am Med Inform Assoc* 2012; 19: 777–81.
11. The Platform Doctors Trust for Online Video Education. VuMedi [Internet]. [cited 2022 May 3]. Available from: <https://www.vumedi.com/>
12. Meishar-Tal H, Pieterse E. Why do academics use academic social networking sites? *Int Rev Res Open Distrib Learn* [Internet] 2017; 18. Available from: <http://www.irrodl.org/index.php/irrodl/article/view/2643>