

Investigation the rate of Social Media Dependency among Undergraduate Medical School University Students in Ardabil city, Iran

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ARTICLE INFO	ABSTRACT
<p>Article type: Research Paper</p>	<p>Introduction: Nowadays the most widely used applications on the Internet are social networks. It has been reported that excessive use of social media has a negative impact on physical and mental health by causing dependency. Main objective of this study was to investigate the rate of social media dependency among undergraduate medical school university students in Ardabil city, Iran.</p> <p>Materials and Methods: This cross-sectional descriptive-analytical study was conducted among department of medicine students to investigate the level of social media dependency from April 2023 to December 2023. A total of 540 people were participated in the study. The questionnaire along with the demographic information questionnaire was provided for the users and after collecting and scoring the questionnaires, the data were coded and then entered into the SPSS version 24 and then analyzed by descriptive statistics methods in the form of tables, graphs, statistical indicators like average and standard deviation. Furthermore, ANOVA test and Pearson's correlation coefficient were used to check the relationship between statistical data.</p> <p>Results: Of all students, 12.8% had strong dependence on social networks and 71.9% of them had moderate dependence. It was found that the level of dependence to social networks does not have a significant relationship with the students' age, gender, the age of parents and the number of family members, but it has a significant relationship with the position (birth order) of children in the family and the field of study. It was observed that there is a negative relationship between the academic year of students and the level of dependency to social media.</p> <p>Conclusions: According to the results, it was determined that measures should be taken to inform students about the harmful effects of excessive and uncontrolled use of social media.</p>
<p>Article History: Received: 30 Jan 2025 Accepted: 12 Mar 2025</p>	
<p>Keywords: Dependency, University students, Prevalence, Social Media Dependence, social media</p>	
<p>► Please cite this paper as: Motavalli R, Ejder Apay S, Akpınar Selvaslı FZ, Mahmoudnejad L, Nouri S. Investigation the rate of Social Media Dependency among Undergraduate medical school University Students in Ardabil city, Iran. <i>Journal of Patient Safety and Quality Improvement</i>. 2025; 13(1):67-79. Doi: 10.22038/psj.2025.85761.1458</p>	

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Introduction

People connected in various manners and maintain these intuitive as individuals of society. The ways we communicate are ceaselessly advancing and growing nearby technological progressions (1,2). The Internet has gotten to be a vital component of life in advanced communities, essentially changing different aspects of people's lives universally (3). People are spending more time online because the Internet plays an important role in their daily social lives (4). Social networking platforms (SNPs) are online tools (5) that allow people to share content, ideas, opinions, feelings, and their personal, social, and educational experiences.

These platforms help people from all over the world talk to each other (6,7). Some popular social networks are Instagram, Telegram, Facebook, Twitter, Skype, and WhatsApp (8,9). A study done in 2021 showed that Snap Chat was the most used app (45%), Instagram came next (22%), followed by Twitter (18%), and WhatsApp (7%) (10). In 2022, out of the 7.91 billion people in the world, 4.62 billion were using social media. People spend about 6 hours and 58 minutes online every day, and around 2 hours and 27 minutes of those hours are on social media (11). Chaffey says that about 53.6% of people around the world use social networking sites (SNPs) for an average of 2 hours and 25 minutes every day (12). In Iran, the number of people using the Internet grew a lot, going from 3.8% in 2000 to more than 69.1% in 2018 (13). Social media applications like Facebook, Instagram, and TikTok help people stay connected online, no matter where they are or other challenges (13,14). Since social networking sites started, more and more people around the world, especially students, have been using them. This rise is made easier by how common smartphones are and how simple it is to use these platforms on home computers and other smart devices (10). For many students, these networks are an important part of their everyday life, giving them access to many opportunities. New information shows that social media has become very popular with teens, especially because many countries have enforced strict rules during the COVID-19 pandemic, like staying away

from others, staying at home, and being in quarantine (16). In this new situation, social media is very important in daily life, especially for kids and teenagers (17).

Students often use social media sites and apps, spending a lot of their day on them. Studies show that students are one of the biggest groups of social network users (15). They spend a lot of time online doing things like working on research projects, talking to teachers, working with classmates, and making friends around the world (15,18,19). Social media is a big part of our daily lives, especially for young people (20).

Social media has many uses, such as talking to people, making friends, and promoting products (21). This can have many advantages, but it can also cause problems like cyberbullying, people being picked on, anxiety, and feeling burned out (22,23). As people spend more time on social media and use it in different ways, the chance of becoming dependent on it also increases (26,27). The DSM-5, a guide for mental health issues, has created a category called "other disorder from addictive behavior." This category includes things like internet gaming and gambling, but it does not include being dependent on social media yet (29).

Since the DSM-5 doesn't label social media addiction as a mental health condition, people usually see it as a behavior problem. This problem can be seen when someone uses something too much, can't stop using it, ignores their daily tasks, hurts their friendships, and lies about how much time they spend on it (31).

Not being able to use social media can make people feel unhappy, angry, and stressed (32). Paying more attention to social media instead of talking to people in person, and spending too much time on these platforms, can weaken social skills and harm relationships with others (33,34).

Many reports have highlighted important worries about how social media affects mental health. A report from 2011 by the American Academy of Pediatrics (AAP) talks about something called "Facebook depression." This can happen when tweens and teens spend a lot of time on social media, like Facebook, and start showing signs of depression. The UK's Royal Society for Public Health (RSPH) says there is strong

evidence showing that using social media is related to mental health problems. This is based on a survey of about 1,500 people aged 14 to 24)36(. Some researchers believe that using social media more often can greatly increase the chances of developing issues like "Facebook depression," "fear of missing out" (FOMO), and "social comparison orientation" (SCO). (37). Using social networking sites too much can lead to various problems, but being too dependent on them is one of the biggest concerns right now. SNS dependency means that a person thinks a lot about using social media and spends a lot of time on it. Studies show that being too dependent on social networking sites can hurt school performance, cause lack of sleep, create feelings of loneliness, and raise the chances of neck pain (40). Also, it can harm mental health, causing problems like depression, anxiety, mood changes, and less physical activity. This increases the risk of metabolic syndrome and long-term diseases that are not contagious (10). Other problems include tired eyes and headaches.

About 184% of people are believed to be dependent on social media, but this number can vary a lot based on different studies and countries, with estimates going from as low as 0. 5% to as high as 73%. Asia has the highest percentage of cases among all continents, at 22. 8% (42). More college students are becoming addicted to the internet. This is happening because of their special social situations, the environments they are in, and the fact that they often use the internet without supervision and have control over their own time (43,44). Research from around the world shows that many people are dependent on social networking sites (SNS) (45). For example, a study showed that 34% of Chinese students relied on social networking sites. A study done five years ago with college students in Nepal found that 35. 4% of them were dependent on the internet. Many students rely heavily on the internet, so it's important to understand how big this problem is and to take quick action to reduce its harmful effects. This means that social media reliance among college students is an important health issue that needs more research and awareness from the public (47). This study looks at how common social media

dependency is among undergraduate medical students in Ardabil City, based on different research findings.

Methods and Materials

This cross-sectional descriptive-analytical study was conducted among department of medicine, Ardabil Islamic Azad University students from April 2023 to December 2023. A total of 540 university students (268 men and 272 women) including students of Medical, Midwifery, Nursing, Laboratory Science, and Clinical Psychology were participated in the study. The data were collected using the social media dependency questionnaire, i.e. the student form prepared by Cengiz Şahin in 2018, as well as using simple random sampling method. The structure of questionnaire is a 29-question questionnaire with five Likert-type options (1-I strongly disagree, 2-I disagree, 3-I have no opinion, 4-I agree, 5-I strongly agree) consisting of 4 sub-components (virtual tolerance, virtual communication, virtual problem, and virtual consciousness). Questions 1-5 are related to virtual tolerance, questions 6-14 are related to virtual communication, questions 15-23 are related to virtual problem, and questions 24-29 are related to virtual consciousness. By summing up the scores obtained from the research samples answering the questions, the level of dependency is graded as "no dependency", "low dependency", "moderate dependency", "high dependency", and "very high dependency". The highest score that can be obtained from the questionnaire is 145 and the lowest score is 29. A high score means that the person is addicted to social media. In terms of the questionnaire validity, according to Şahin's report, regarding the exploratory factor analysis, the questionnaire has a 4-factor structure that accounts for 53.16% of the total variance. Both Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test were significant, $\chi^2=0.96$ and 12680.88, respectively ($p=0.00$). The reliability of the questionnaire using Cronbach's alpha method for the whole scale is 0.93 and for the subgroups the values are 0.81 to 0.86 and the reliability of the questionnaire is 0.94 using the retest method)48(. In the present research, this questionnaire was translated into Persian

version after obtaining permission from the questionnaire designer in Turkey. The questionnaire was given to 10 faculty members and experts who were fluent in both Farsi and Istanbul Turkish languages, and according to their opinions and correction suggestions, the content validity of the questionnaire was confirmed by the final investigations. The reliability of the questionnaire by Cronbach's alpha method for overall virtual compatibility in all people was 0.73, virtual communication 0.80, virtual problem 0.85, virtual awareness 0.79, and total dependence score 0.91, and it was found that this questionnaire in Iran is also a valid and reliable scale to determine the level of students dependency to social media. The users were provided with the questionnaire along with the demographic information questionnaire, then the questionnaires were collected and scored, and the data was entered into SPSS software (version 24) after being coded. The data were analyzed by descriptive statistics methods in the form of tables, graphs, average and standard deviation statistical indicators. Also, ANOVA and Pearson's Correlation Coefficient were used to check the relationship between the statistical data. A significance level of less than 0.05 was considered significant in all statistical tests.

Results

According to the results of table (1), 49.63% of the subjects were boys and 50.37% of them were girls. Additionally, 25.56% of the subjects with the lowest frequency were in the third and fourth academic years and 74.44% of them with the highest frequency were in the first and second academic years.

Moreover, among the studied people, 73.5% were studying in Medical and Paramedical Group (Midwifery, Nursing and Laboratory Science) and 26.5% in Psychology. 33.5% of them were in families with more than four people (number of family members) and 66.5% were in families with less than 4 people. In addition, respectively, 22.2 and 23.9 percent of the fathers and mothers of the studied subjects were employees, 55.7 percent and 9.3 percent of them had a freelance job, 22 and 4.4 percent of them were retired, and 62.4 percent of the mothers of the studied subjects were homemakers. According to the results of table (1), 3.3 percent of the studied subjects were the fourth child or more, 12.8 percent of them were the third child, 40.2 percent were the second child, and 43.7 percent were the first child in the family. Also, 38.9% of the studied people said that the allowance did not provide enough monthly expenses and 61.1% said that it was enough (Table1).

Table 1. Demographic characteristics of the studied samples (n=540)

Variables		Frequency	Percent
Gender	Boy	268	49.63
	Girl	272	50.37
Academic year	First and Second years	402	74.44
	Third and Fourth years	138	25.56
Field of study	Medical and Paramedical Group (Midwifery, Nursing and laboratory science)	397	73.5
	Psychology	143	26.5
Number of family members	≥ 4	359	66.5
	< 4	181	33.5
Father's job	Employer	120	22.2
	Free job	301	55.7
	Retired	119	22.0
Mother's job	Housewife	337	62.4
	Employer	129	23.9
	Free job	50	9.3
How many children are you in the family?	Retired	24	4.4
	1.00	236	43.7
	2.00	217	40.2
	3.00	69	12.8
Sufficient money	4.00	18	3.3
	Yes	330	61.1
	No	210	38.9

Based on the results of table (2), in the subscale of virtual tolerance, 8.5% was the lowest frequency of very high dependence and 19.6% was reported of low dependence. In the subscale of virtual communication, 1.9% was the lowest frequency of very high dependence and 46.5% was reported of low dependence. In the virtual problem subscale, 0.7% was the lowest frequency of very high

dependence and 73.1% of low level dependence; in the virtual consciousness subscale, 0.9% was the lowest frequency of very high dependence and 68.9% was of moderate dependence; in total score of dependence, 12.8% was the lowest frequency reported of high dependence and 71.9% was reported of moderate dependence (Table 2).

Table 2. Descriptive indicators of dependence on virtual space and its components

Variable	Virtual Tolerance		Virtual Communication		Virtual Problem		Virtual Consciousness		Total score of dependence	
	Frequency	Percent	F	P	F	P	F	P	F	P
No dependency	51	9.4	88	16.3	-	-	2	0.4	-	-
Mild/Lower	106	19.6	251	46.5	58	10.7	57	10.6	83	15.4
Moderate	230	42.6	154	28.5	395	73.1	372	68.9	388	71.9
High	107	19.8	37	6.9	83	15.4	104	19.3	69	12.8
Very high	46	8.5	10	1.9	4	0.7	5	0.9	-	-

According to the figure (1), all of students had a type of dependency in moderate level (Fig1).

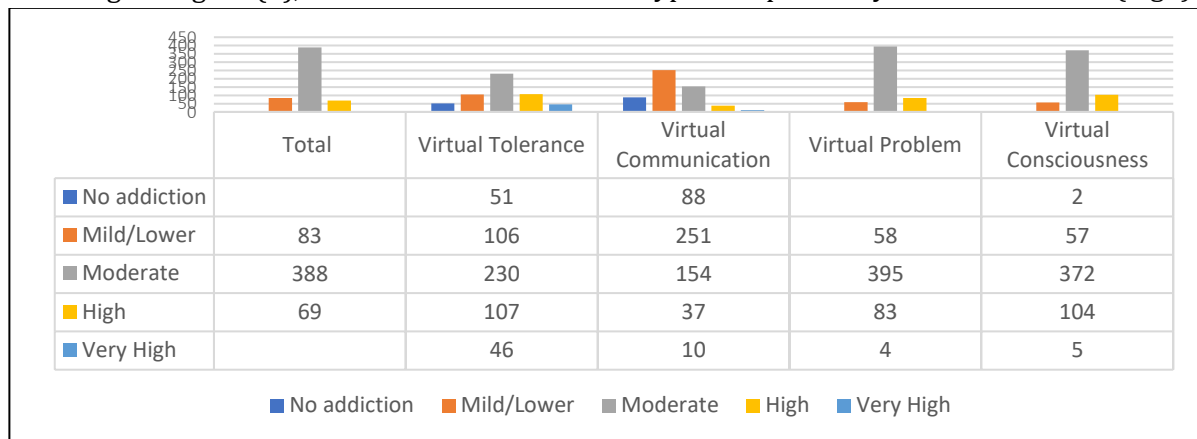


Fig. 1 Frequency of Type of Dependency Among Students

According to the figure 2, the rate of total dependency and also other types of dependency among male and female

students were similar without any significant difference (Fig 2).

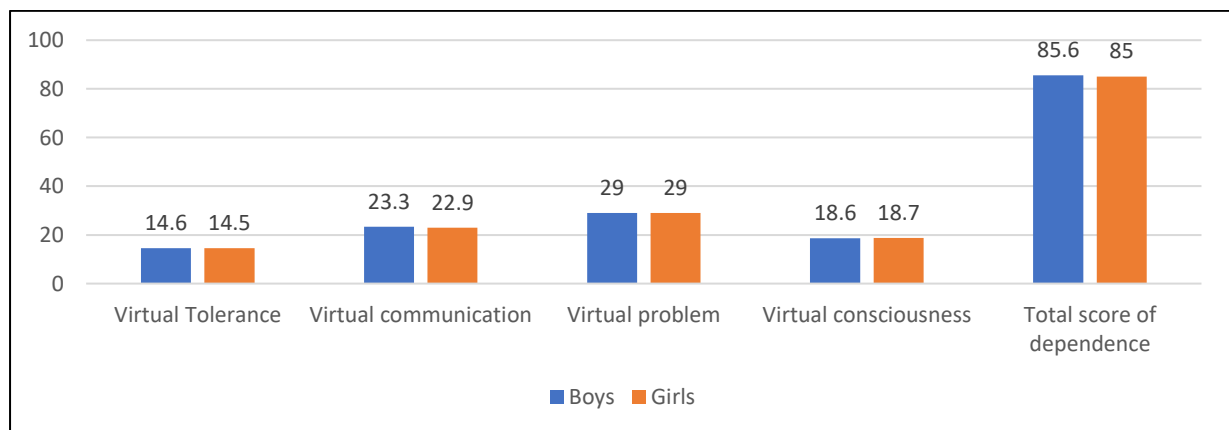


Fig 2. Mean of dependency scores by gender in students

According to table (3), there is a significant relationship between the age of the studied subjects and father's age ($r=0.42$), mother's age ($r=0.44$); and between father's age and mother's age ($r=0.76$) ($p<0.01$). However,

there is no significant relationship between dependence of virtual space and the age of the subjects, mother's age, father's age and the number of family members (Table 3).

Table 3. Pearson correlation between quantitative variables with the total score of dependence on virtual space

		age	fathorage	Motherage	family.members	Total.score3
Age	Pearson Correlation	1	.420**	.444**	.031	-.052
	Sig. (2-tailed)		.000	.000	.474	.230
	N		540	540	540	540
Father.age	Pearson Correlation		1	.767**	.075	-.003
	Sig. (2-tailed)			.000	.082	.941
	N			540	540	540
Mother.age	Pearson Correlation			1	.027	-.039
	Sig. (2-tailed)				.538	.365
	N				540	540
Family.members	Pearson Correlation				1	-.047
	Sig. (2-tailed)					.278
	N					540
Total.score	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

*The significance of the test for the error level is 0.05 **The significance of the test for the error level is 0.01

In table (4), the mean and standard deviation of the total score of dependence on virtual space and its subscales based on the number of children in the family are presented. The results of this table show that there is a significant difference between the number of children in the family and the

virtual tolerance subscale ($p=0.032$); virtual communication ($p=0.07$); virtual consciousness ($p=0.018$) and the total score of dependence on virtual networks ($p=0.033$). But there is no significant relationship with the virtual problem component ($p=0.92$) (Table 4).

Table 4. Comparison of the average total score and components of dependence on virtual networks based on the number of children in the family

Variables		N	Mean	Std. Deviation	Sig.
Virtual Tolerance	1.00	236	14.5297	4.03748	.032
	2.00	217	14.5161	4.43794	
	3.00	69	13.5217	3.89422	
	4.00	18	16.6111	3.53368	
Virtual communication	1.00	236	22.9958	6.67705	.007
	2.00	217	23.5023	6.77012	
	3.00	69	20.7826	6.03390	
	4.00	18	25.9444	8.57131	
Virtual problem	1.00	236	28.8	3.6	.92
	2.00	217	28.9	3.7	
	3.00	69	29.1	4.1	
	4.00	18	28.9	2.5	
Virtual consciousness	1.00	236	17.9619	4.53575	.018
	2.00	217	17.5945	4.82294	
	3.00	69	14.7971	5.22882	
	4.00	18	20.5556	4.59184	
Total score of dependence	1.00	236	85.1	10.1	.033
	2.00	217	85.6	10.9	
	3.00	69	83	10.3	
	4.00	18	91	10.8	

In table (5), the mean and standard deviation of the total score of dependence on virtual space and its components are presented based on the fields of study. The results of this table show that there is a significant difference between the field of study and the virtual tolerance ($p=0.046$); virtual communication ($p=0.007$); virtual problem ($p=0.033$); and the total score of

dependence on virtual space ($p=0.001$). But there is no significant relationship between virtual consciousness ($p=0.11$) and academic fields. According to the table, the degree of dependence in the fields of medicine and paramedicine is 86.2 ± 11 , significantly higher than the field of psychology with 82.5 ± 8.5 (Table 5).

Table 5. Comparison of the average total score and components of dependence on virtual networks based on the fields of study

Variables		N	Mean	Std. Deviation	Sig.
Virtual Tolerance	Medical and Paramedical Group	397	14.8	4.2	0.046
	Psychology	143	13.9	3.9	
Virtual communication	Medical and Paramedical Group	397	23.6	6.9	0.007
	Psychology	143	21.8	5.5	
Virtual problem	Medical and Paramedical Group	397	28.3	3.5	0.033
	Psychology	143	18.8	2.6	
Virtual consciousness	Medical and Paramedical Group	397	18.8	2.6	0.11
	Psychology	143	18.4	2.6	
Total score of dependence	Medical and Paramedical Group	397	86.2	11	0.001
	Psychology	143	82.5	8.5	

In table (6), the mean and standard deviation of the total score of dependence on virtual space and its components are presented based on the gender of the students. The results of this table show that there is no significant difference between

the gender of students and the components of virtual tolerance; virtual communication; virtual problem; virtual consciousness and the total score of dependence on virtual space (Table 6).

Table 6. Comparison of the average total score and components of dependence on virtual networks based on the gender of the students

Variables		N	Mean	Std. Deviation	Sig.
Virtual Tolerance	Boy	268	14.6	4.4	0.78
	Girl	272	14.5	3.9	
Virtual communication	Boy	268	23.3	6.8	0.55
	Girl	272	22.9	6.5	
Virtual problem	Boy	268	29	3.7	0.99
	Girl	272	29	3.6	
Virtual consciousness	Boy	268	18.6	2.8	0.79
	Girl	272	18.7	2.5	
Total score of dependence	Boy	268	85.4	10.8	0.67
	Girl	272	85	10.3	

In table (7), the mean and standard deviation of the total score of dependence on virtual space and its components are presented based on the academic year. The results of this table show that there is a significant difference between the academic year of students and virtual communication ($p=0.035$) and the total score of dependence on virtual space ($p=0.031$). But there is no

significant difference between the academic year of the students and the components of virtual tolerance, virtual consciousness and virtual problem. According to the results of the table, the dependency rate in the first years of education is higher than in the last years of education (85.8 ± 10.8 versus 83.1 ± 10.7) (Table 7).

Table 7. Comparison of the average total score and components of dependence on virtual networks based on the Academic year

Variables		N	Mean	Std. Deviation	Sig.
Virtual Tolerance	First and Second years	402	14.7	4.3	0.14
	Third and Forth years	138	13.9	3.8	
Virtual communication	First and Second years	402	23.6	7.2	0.035
	Third and Forth years	138	21.9	6	
Virtual problem	First and Second years	402	29	3.3	0.18
	Third and Forth years	138	28	4.1	
Virtual consciousness	First and Second years	402	18.5	2.6	0.35
	Third and Forth years	138	18.8	2.7	
Total score of dependence	First and Second years	402	85.8	10.8	0.031
	Third and Forth years	138	83.1	10.7	

Discussion

University students are the most age group that use social media applications and spend noticeable time on these applications (15). It has been reported that excessive use of social media has a negative effect on physical and mental health by resulting in dependence (42).

This study was conducted with the aim of investigating the rate of dependency to social media among students studying in various fields of the Faculty of Medical Sciences of Islamic Azad University, Ardabil branch in Iran. The results of this study showed that the level of dependency to social media among 540 students in moderate level was 71.9% (number = 388). In Das and Padmavathy's study, the level of dependency to social media among university students was reported to be 65% (49); i.e. the results of the studies were somewhat similar. In a cross-sectional study that covered 32 countries (50), the prevalence of social media dependency was reported to be 32% in the Asian region, 15% in the North American region, and 8% in the Northern European region. Salari et al. in their systematic study (42) in which the results of 51 studies and 35,520 students were examined, the prevalence of dependency to social media was declared as 18.4%. It is thought that the different results of some studies are probably due to the measurement instruments, various study groups and sampling from different countries with a variety of cultures and

paces. The prevalence of social media dependency in countries with high economic levels was high compared to countries with low economic levels, and community mental health services were reported to be insufficient (51). Additionally, it has been reported that people with economic or social disadvantages use social media more to communicate, cope with stress, and feel good (52).

In this study, it was found that there was a significant difference between the number of children in the family and the degree of dependency to social media as well as such components as virtual tolerance, virtual communication, virtual awareness and the total score of dependence on virtual space. The findings of this study are consistent with the background of existing research, because as the number of children in the family increases, the per capita economic contribution decreases, making parents unable to look after all their children equally. According to social control theory, social media dependency is associated with some demographic variables like gender (42,53) and it has been reported that men are more prone to social media dependency compared to women (15,42,54).

On the other hand, some studies have reported that women use social media more than men and this increases the risk of social media dependency in women (55-59). According to the studies, it has been reported that since the young age group spends more time on social networks

compared to the adult group, the possibility of social media dependency is high at this age (50,60,61).

According to the data of the present study, it was observed that there was no significant difference between age, gender and the level of dependency to social networks. In similar studies conducted by Das and Padmavathy (49) and Majid (62), it was also reported that there was no difference between male and female students in terms of dependency to social networks and both groups used these networks equally. In Altin and Kivrak's study (63) conducted in Turkey, it was reported that there was no significant difference between age, gender and social media dependency, parallel to our findings. It is believed that the reason for this situation in our study and similar studies is the close age of the participants and the homogeneous distribution of the groups.

However, in another study similar to ours, conducted by Henzel and Hakansson (64) with 2118 participants, there was no significant relationship between gender and problematic use of social media, but a significant relationship between age (especially in the young age group) and problematic use of social media has been reported, which indicates high and problematic use of social networks in the age range of 18-39 years. According to the results of the study of Azizi et al. (15) among medical students in Iran, it was reported that male students had a higher level of social media dependency than female students. In the present study, it was observed that there was a significant difference between academic fields and the level of social media dependency. It was also found that the level of social media dependency of medical and paramedical students was higher than that of psychology students.

It is believed that studying medicine and para-medicine compared to psychology department includes a more intensive curriculum, working in hospitals, and more stressful emergency circumstances, and the medical and paramedical group might use social media more as an instrument to cope with their stress. On the other hand, the behavioral explanation theory states that people enter social networks to escape from reality and to receive rewards like

entertainment (53). From another point of view, since students who study psychology have a higher knowledge about the psychology of right and wrong human behaviors, they may have healthier and more effective choices other than using social media to deal with stress. In the present research, it was observed that there was a significant difference between the academic year of the students and the component of virtual communication and the total score of social media dependency, based on which the level of dependency in the first years of education was higher than in the last years of education. It is believed that this situation is due to the fact that in the first years of the university, basic and lighter courses are offered and students have more time for themselves, but in the last years of education, due to being offered specialized courses and passing internships in hospitals and medical centers, in order to become more professional and responsible in their field, they don't have much time to use social networks. In consistent with the results of the present research, Sayili et al. (59) reported that third year medical students had higher internet dependency than sixth year medical students. In another study by Tutgun Unal, it was also reported that students in the first year of university were more addicted to social media than senior students (65). However, in the study of Asrese and Muche (66), contrary to the mentioned results, it was reported that the risk of problematic use of the Internet raises with the increase of years spent in university. Today, due to the growing use of social media, their influence and prevalence as well as their attraction for the academic community are inevitable (67). Although the use of social media has been reported to have such objectives as communication, education, making friends, gaming, and entertainment (68), but it was expressed that excessive and uncontrolled use of social media is associated with significant stress, and this stress has a negative effect on the physical and mental health of students as well as their cognitive performance (15).

Considering the growing use of social media and the negative effects of their excessive use causing dependency, in this cross-sectional study, we examined the

prevalence level of social media dependency in two fields of study of which all the people will be working in health, hygiene and treatment fields in the future so that we predict possible risks and provide early and preventive interventions. For the above-mentioned reason, this study is considered important for the research literature because it reveals the extent of social media dependency as well as it deals especially with the student group. However, this study bears limitations; firstly, it is based on cross-sectional data, so the findings are correlational rather than causal. It is thought that it would be appropriate for further studies to examine the causal effect using a longitudinal or cohort design or other analytical research design. Another limitation is that the present study is merely limited to university students who study in the field of medical sciences, while the results should be generalized to the whole population, which should be considered in future studies.

Conclusion

The level of students' dependency to social media is moderate and no significant relationship was observed between age, gender and the level of dependency to social media. On the other hand, it has been determined that there is a significant relationship between the students' field of study and their level of dependency to social networks, and a negative relationship was observed between the academic year and the level of social media dependency. This is a cross-sectional study that provides relevant data in terms of social media dependency. But considering that the dependency to social networks is increasing in the society, which especially affects young students, we recommend conducting similar studies in other educational levels and other university groups and different disciplines to reveal the causal relationships so as to get a more definite result.

Acknowledgments

We thank all the participants and staff involved in this study.

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