ORIGINAL ARTICLE Orijinal Araştırma

Correspondence address Yazışma adresi

Levent DONMEZ Akdeniz University, Faculty of Medicine, Dept of Public Health, Antalya, Türkiye donmez@akdeniz.edu.tr

Geliş tarihi / Received: June 05, 2023Kabul Tarihi / Accepted: October 05, 2023E-Yayın Tarihi / E-Published : September 01, 2024

Cite this article as Bu makalede yapılacak atıf Bilge U., Donmez L. Social Network Usage Among Medical Students and Its Relationship with Stress Akd Med J 2024;10(3): 416-425

Ugur BILGE

Akdeniz University, Faculty of Medicine, Dept of Biostatistics and Medical Informatics, Antalya, Türkiye **ORCID ID:** 0000-0002-5186-1092

Levent DONMEZ

Akdeniz University, Faculty of Medicine, Dept of Public Health, Antalya, Türkiye ORCID ID: 0000-0002-5970-8658 Social Network Usage Among Medical Students and Its Relationship with Stress

Tıp Öğrencilerinde Sosyal Ağların Kullanımı ve Bunun Stresle İlişkisi

ABSTRACT Objective:

The increasing use of social network sites has become a globally widespread phenomenon. It is also known that medical students are being exposed to several stress factors. This study aims to predict the social networking habits and stress levels of medical students, as well as investigating the relationship between social network usage and stress levels, including personal attributes.

Material and Methods:

A questionnaire, involving the perceived stress scale and other characteristics of the participants, was carried out on 1311 medical students, educated at Akdeniz University Medical Faculty during the 2017-2018 academic years. This is a cross-sectional study, and the dataset was analysed by logistic regression.

Results:

Number of students who use any one of the three main social network sites (Facebook, Instagram and Twitter) was 1203 (91.8%), and there were found to be 108 students who used no social media (8.2%). Of the students, 992 (75.7%) used Facebook, 928 (70.8%) used Instagram and 512 (39.1%) used Twitter. 269 students (20.5%) used Facebook previously and now have stopped using it. A total of 766 (58.4%) students spent more than one hour per day on social media. According to the logistic regression analysis; the academic year of students, gender, unhappiness with being in the medical faculty, feeling lonely, stress coping scores and stable parental relationships were related significantly to stress level. After adjusting other variables, frequent social media users were 1.3 times more stressed than others (OR=1.35; 95% CI=1.05-1.74; p<0.05).

Conclusion:

The frequency of social media use in medical students is similar to others in the same age group in other countries, and there seems to be a link between social media use and stress. To improve and support medical education, social media use must be added as a factor in addition to other stress factors already known. Frequent social network users' psychological, behavioural, and physical development should be monitored closely to improve the health of this group.

Key Words:

Social networking users, Stress, Medical students

Amaç:

Sosyal ağ kullanımı tüm dünyada giderek artan bir fenomendir. Tıp öğrencilerinin çeşitli stres faktörlerine maruz kaldığı da bilinmektedir. Bu çalışmanın amacı tıp fakültesi öğrencilerinde sosyal ağ kullanımı alışkanlıklarını saptamak ve sosyal ağ kullanımı ile öğrencilerin kişisel özellikleri ve stres düzeyleri arasındaki ilişkiyi göstermektir.

Gereç ve Yöntemler:

Akdeniz Üniversitesi Tıp Fakültesinde 2017-2018 eğitim öğretim döneminde eğitim gören 1311 öğrenciye algılanan stres ölçeğini ve katılımcıların diğer özelliklerini içeren bir anket formu uygulanmıştır. Kesitsel özellikte olan bu çalışmada elde edilen veriler lojistik regresyon ile analiz edilmiştir.

Bulgular:

Üç temel sosyal ağ sitesinden en az birini kullanan öğrenci sayısı 1203'dü (%91,8). Öğrencilerin, 992'si (%75,7) Facebook, 928'si (%70,8) Instagram ve 512'si (%39,1) Twitter kullanıyordu. Toplam 766 (%58,4) öğrenci sosyal medyada günde bir saatten fazla vakit geçiriyordu. Lojistik regresyon analizi sonuçlarına göre; öğrencilerin kaçıncı sınıfta olduğu, cinsiyeti, tıp fakültesinden memnuniyet durumu, yalnızlık hissi duymaları, stresle başa çıkma becerisi ve anne babanın ayrı olup olmama durumu, bağımlı değişken olan yüksek stresle anlamlı olarak ilişkili faktörlerdi. Diğer değişkenler düzeltildiğinde sosyal medyayı daha sık kullananların stres sıklığı 1,3 kat (OR=1,35; %95GA=1,05-1,74; p<0,05) daha yüksekti.

Sonuç:

Tıp Fakültesi öğrencilerinde sosyal medya kullanım sıklığı diğer ülkelerdeki aynı yaş grubundaki topluluklarla benzerdir ve yoğun sosyal medya kullanımı ile stres arasında bir ilişki mevcuttur. Tıp eğitiminin geliştirilmesi ve desteklenmesi için, sosyal medya kullanımının da önceden bilinen stres faktörlerinin yanında ilave bir risk olarak değerlendirilmesi gerekir. Sosyal medyayı daha yoğun kullanan tıp öğrencilerinin ruhsal, davranışsal ve fiziksel gelişimlerinin daha yakından izlenmesi bu grubun sağlığının geliştirilmesi yönünden uygun olacaktır.

Anahtar Kelimeler:

Sosyal ağ kullanımı, Stres, Tıp öğrencileri

INTRODUCTION

Online social networking sites (SNSs) have become increasingly popular in the last two decades (1, 2). In 2019 it is estimated that there will be around 2.77 billion social media users around the globe, up from 970 million in 2010 (3). On average, global internet users spend some 135 minutes per day surfing social networks (4). The fast and widespread social communication contributes positively to social life, but also brings with it several negative

outcomes (1, 5). Studies carried out so far point out the problems regarding the use of online social networks, and report that the overuse of these sites can cause psychological, physical and social problems (6-13). Awareness of the negative effects of overuse of online social networks and determining the current situation in certain population groups may help to overcome these problems and prevent any further harm these networks can cause in the future. Stress is an issue that is becoming a widespread problem and an increasing burden on the population's health, social and economic well-being (14-17). Stress can cause important health problems, especially when it is chronic. The incidence of psychological problems such as depression, suicide and burnout, as well as physical conditions including muscular and skeletal pains, hypertension and cardiovascular diseases are also reported to be increasing with stress (18-24). Several factors that cause stress affect medical students, and may be the underlying reasons for the increase in the incidence of stress-related problems in this group (25-27). Several studies have already been carried out on the relationship between the use of online social networks and health in the general population, yet to our knowledge there is no study so far investigating the relationship between the use of social networks and stress in medical students (28-35). It is known that medical students have more factors causing stress compared with other students, and we investigate if social media usage would introduce extra stress on medical students. It would be useful to investigate the online social network usage of medical students and their stress levels in order to understand this socio-psychological problem, and it could help overcome the issues relating to it.

In this study, we aim to understand social networking habits, stress levels, students' ability to cope with stress, and other personal attributes, as well as investigate the existence of relations between these variables. Our main aim is to show that the overuse of social media increases stress in medical students. We also aimed to explore personal attributes affecting the use of social media.

MATERIAL and METHODS

Study type and hypothesis

This is a cross-sectional study carried out firstly to establish the frequency of online social network usage amongst students at a University Medical Faculty, secondly to investigate if there are any links between personal attributes and the use of social networks and finally to test the hypothesis if there is any relationship between the frequency of stress and students' social networking habits. Our main hypothesis is that overuse of social media increases stress in medical students. The secondary hypothesis is that personal attributes affect the use of social media.

The population and sample

The population for research is all 2183 students studying at Akdeniz University Faculty of Medicine during the 2017-2018 academic year. No sample was selected and all students were targeted in the research, and 1311 (60.05%) students were reached. Sub-analyses were performed and it was understood that those who did not participate in the study could be randomly excluded from the study.

Research region

Akdeniz University is situated in Antalya, the fifth most populated city (1.2 million) in Turkey, with big population movements as it receives approximately ten million tourists per year. It attracts migration from other provinces particularly in the summer when there are temporary jobs in tourism and agriculture.

Dependent and independent variables

Dependent variables of the study are; time spent on social networks per day, and stress level.

Independent variables of the study are: gender, year of study, monthly income level, accommodation type, parents' marital status, sleep time and quality, satisfaction with education received, daily study time, and feeling of loneliness. Figure 1 shows the hypothetical model of the relationship between the dependent and independent variables of the study.

In our study, as our two hypotheses, we first claim that some personal factors increase the use of social media, and secondly, the increased use of social media increases stress. Frequency of social media use is the dependent variable in the first hypothesis, and it is considered as the independent variable affecting stress in the second hypothesis. Accordingly, in the first step, year of study, gender, parents' marital status, income, accommodation, satisfaction with medical education, and feeling of loneliness (variables in the big box in Figure 1) were independent variables for the frequency of social networking usage. As for in second step; frequency of social networking usage, coping with stress, daily study time and sleep quality (small boxes in Figure 1) were independent variables for stress level.

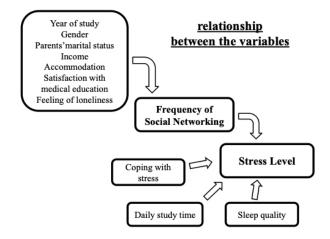


Figure 1. Hypothetical model of relationship between dependent and independent variables

Terms and Criteria used in the study

Data acquisition (questionnaire): A questionnaire containing the following terms and questions that define the personal characteristics of students has been used, these are: Satisfaction with the medical faculty, sleep patterns, academic achievement, social networking patterns, stress level and the ability to cope with stress.

Stress: Stress is defined according to the Lazarus and Folkman approach in the study (36). Lazarus and Folkman proposed that stress occurs when people perceive that the demands from external situations are beyond their coping capacity. Stress is measured by using a standard scale developed by Cohen et al., (37). The same scale involves questions of coping with stress. This scale is reliable and has a widespread usage (38). The Cohen scale has been translated into Turkish and validated in several studies (39-41).

Perceived Stress Scale (PSS): This scale was developed by Cohen, Kamarck&Mermelstein, and has a Cronbach Alpha validity of 0.86 (37). In our study we used the scale adapted into Turkish by Bilge et al., with a Cronbach Alpha validity of 0.81 (39). Some of the items of the 5 point Likert type scale (0 none, 4 very often) are positive and others are negative questions. A score between 0 to 32 points can be achieved. PSS has two subscales, they are perceived stress and coping with stress. PSS evaluates both total raw scores and the subscores. If the total score is high, it means that the perceived stress level is high. In our study students who scored more than 10 points have been qualified as "high stress" and others as "relatively low stress".

Frequency of social network usage: The frequency of social network usage has been measured as the "daily total time spent on social networks". Students who use social networks for more than one hour are classified as "frequent social network users".

Coping with stress: At the perceived stress scale, students who scored more than six points in coping with stress are categorized as "good at coping with stress" and others as "low in ability to cope with stress".

Satisfaction with Medical Faculty: This was asked in two different expressions: The first one is "whether the student is happy to be a medical faculty student", and in the second question "whether the student intends to leave the medical faculty".

Quality of sleep: Self report is taken.

Data collection process

Data were collected by surveyors in the 2017-2018 academic year by distributing questionnaires and collecting them after completion. Students were first informed about the questionnaire and reminded it is voluntary to participate in the study and fill in the questionnaires.

Data analysis

Data from the questionnaires have been entered into an SPSS version 21 program and after checking the data quality the variables have been grouped. In the data analysis, first descriptive tables have been made, and then analytical findings have been added. In the analysis first chi-square method has been used, later a Binary Logistic Regression method has been applied. Forward conditional model has been chosen for logistic regression analyses. First univariate analyses for all independent variables, then the results of logistic regression analysis have been presented in a table, only listing variables with statistically significant results. In the analyses, the level of statistical meaningfulness is set to p<0,05.

Ethical issues

This study has been approved by Akdeniz University Faculty of Medicine Clinical Research Ethics Committee 2012-KAEK-20, under date and number 07/02/2018-94. Students' consent for participating in the survey was also taken before filling in the questionnaire. This study adheres to the Helsinki Declaration and follows research and publication ethics.

RESULTS

The participants' characteristics

The participants consist of: 168 (12.8%) first-year students, 187 (14.3%) second-year students, 187 (14.3%) third-year students, 311 (23.7%) fourth-year students, 257 (19.6%) fifth-year students, 201 (15.3%) sixth-year students. A total of 609 (46.5%) students are male, and 702 (53.5%) are female. One thousand one hundred fifty-eight (88.3%) students' parents lived together, 507 (38.7%) students' monthly income is below 1,000TL, and 126 (9.6%) students' monthly income is above 2,500TL (1 TL is 0.3 US Dollars at the time of survey). A total of 333 (25.4%) students lived with their families, 366 (27.6%) students shared accommodation with friends, 270 (20.6%) students lived alone, and 170 (13.0%) students lived in the university dormitories.

A total of 897(68.4%) students were satisfied with being a medical student, while 414 (31.6%) students were not happy with being a medical student. While 684(52.2%)students had thought of leaving the medical faculty, 627(47.8%) students hadn't thought about leaving.

A total of 866 (66.1%) students answered the question of whether they feel lonely "little or none" and 445 (33.9%) reported they experience feelings of loneliness.

A total of 637 (48.6%) students studied for 1-3 hours per day, 396 (30.2%) studied more than 3 hours per day and 278 (21.2%) studied less than 1 hour per day. When we

asked about sleep duration; 972 (74.1%) students sleep 6-8 hours per day, 219 (16.7%) sleep less than 6 hours, and 12 (0.9%) sleep more than 10 hours a day. 515 (39.3%) report their sleep quality is sufficient and 796 (60.7%) find their sleep quality is not sufficient.

A total of 595 (45.4%) students score higher than 6 points in coping with stress while 716 (54.6%) score less than 6.

Social network usage

A total of 992 (75.7%) students use Facebook, 928 (70.8%) use Instagram, 512 (39.1%) use Twitter, and 269 (20.5%) previously used Facebook but have now given up. A total of 590 (45.0%) students spend 1-3 hours on social media, 437 (33.3%) spend less than 1 hour and 176 (13.4%) students spend more than 3 hours per day on social media.

A total of 880 (67.1%) students use social media for messaging and communication with friends and acquaintances, 519 (39.6%) use social media for making new friends, 439 (33.5%) for gaining knowledge, finding sources, studying, 426 (32.5%) are sharing messages sent to them, 359 (27.4%) use it for liking, writing replies and comments, leaving comments and 109 (8.3%) use social media for other purposes. A total of 108 (8.2%) students never use social media.

Figure 2 illustrates the distribution of various social media sites as well as common users amongst students. According to our findings: the number of total Facebook users are 992, total Twitter users are 512, total Instagram users are 928, joint Facebook and Twitter users are 412, joint Facebook and Instagram users are 740, joint Instagram and Twitter users are 434, students who use all three (Facebook, Instagram and Twitter) are 357, students who use any one of the three social network sites are 1203, and finally no social media users are found as 108.

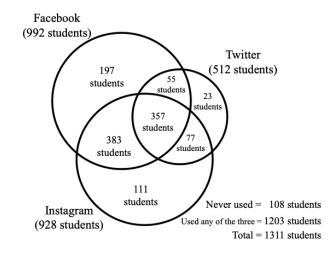


Figure 2. Social media sites usage

Variables linked to social network use

Table I shows univariate analysis regarding the relationship between social media use with some variables. Table II shows a logistic regression analysis of the factors that affect the frequency of social media usage. According to this analysis, students who think of leaving the medical faculty are 1.4 times higher in their use of social media than others (OR=1.41; 95% CI=1.67-1.81; p<0.05). Also, students who feel more lonely are likely to use social media 1.44 times more than others (OR=1.44; 95% CI=1.13-1.82; p<0.05).

Table I. Social media usage and factors affecting it

	Social media usage				
Variables	Les	Less		More	
	number	%	number	%	p*
Year of student					
1 st year	65	38.7	103	61.3	
2 nd year	72	38.5	115	61.5	
3 rd year	90	48.1	97	51.9	
4th year	120	38.6	191	61.4	
5 th year	113	44.0	144	56.0	
6 th year	85	42.3	116	57.5	0.269
Gender					
Female	280	39.9	422	60.1	
Male	265	43.5	344	56.5	0.184
Parents' marital status					
Married	480	41.5	678	58.5	
Other	65	42.5	88	57.5	0.808
Income levels					
Low	219	43.2	288	56.8	
Middle	184	41.3	262	58.7	
High	142	39.7	216	60.3	0.576
Accommodation					
with family	148	39.1	231	60.9	
university dormitories.	129	43.6	167	56.4	
with friends	151	41.3	215	58.7	
lived alone	117	43.3	153	56.7	0.605
Happiness with medical					
faculty					
Нарру	389	43.4	508	56.6	
Unhappy	156	37.7	258	62.3	0.052
Thinking of leaving Medical					
Faculty					
No	314	45.9	370	54.1	
Yes	231	36.8	396	63.2	0.001
Feeling lonely					
No	388	44.8	478	55.2	
Yes	157	35.3	288	64.7	0.001

*Chi-square test

Table II. Logistic Regression analysis for social media usage and factors affecting it

Variables*	B±SE**	OR*** (95%CI)	р
Factors linked to social network usage			
Constant	-0.060+0.084	1.062	0.475
† Thinking of leaving Medical Faculty a	0.341±0.114	1.406(1.166-1.815)	0.003
† Higher levels of feeling lonely ^b	0.362±0.121	1.437(1.132-1.822)	0.003

*Variables that were included in the analysis.

*variables indi were included in ine analysis: Dependent variable; social network usege "More frequent social network users" Independent variables; year of study, gender, parents' marital status, income levels, accommodation, happiness with medical faculty, feeling lonely *#bSE: coefficient of regression and Standard Error; ***OR: Odds Ratio,

†reference categories; a: students who don't consider leaving medical faculty, b: ones that don't feel lonely,

Stress score levels and variables linked to stress

Table III shows the univariate analysis regarding the relationship of stress score level with some variables. Our main objective in this study is to find out if there is a link between the frequency of social media usage and stress, independent of other variables in the study. In this analysis we focus on statistical analyses of stress score and other variables (Table IV).

Table III. Stress score	level and its rel	ationship with sor	ne variables

Variables	Stress score				
	Lower	%	Higher	%	p*
Year of student					
1 st year	113	67.3	55	32.7	
2 nd year	109	58.3	78	41.7	
3 rd year	106	56.7	81	43.3	
4th year	124	39.9	187	60.1	
5 th year	148	57.6	109	42.4	
6 th year	108	53.7	93	46.3	< 0.001
Gender					
Female	363	51.7	339	48.3	
Male	345	56.7	264	43.3	0.073
Parents' marital status					
Married	654	56.5	504	43.5	
Other	54	35.3	99	64.7	< 0.001
Income levels					
Low	273	53.8	234	46.2	
Middle	241	54.0	205	46.0	
High	194	54.2	164	45.8	0.995
Accommodation					
with family	205	54.1	174	45.9	
university dormitories.	178	60.1	118	50.8	
with friends	180	49.2	186	50.8	
lived alone	145	53.7	125	46.3	0.048
Happiness with medical	110	0011	120	1012	01010
faculty					
Нарру	538	60.0	359	40.0	
Unhappy	170	41.1	244	58.9	< 0.001
Thinking of leaving Medical	170		211	50.5	-0.001
Faculty					
No	422	61.7	262	38.3	
Yes	286	45.6	341	54.4	< 0.001
Feeling lonely	200		511	21.1	-0.001
No	568	65.6	298	34.4	
Yes	140	31.5	305	68.5	< 0.001
Network usage	140	51.5	505	00.5	-0.001
Less	325	59.4	221	40.6	
High	384	50.1	382	49.9	0.001
Coping with stress	501	50.1	502	17.7	0.001
Low	288	40.2	428	59.8	
High	420	70.6	175	29.4	< 0.001
Sleep quality	420	70.0	175	27. 4	~0.001
Good	305	59.2	210	40.8	
Poor	403	50.6	393	49.4	0.002
Study time spent	405	50.0	375	47.4	0.002
Less than one hour	150	54.0	128	46.0	
1-3 hours	354	54.0 55.6	283	46.0	
	354 204	55.6 51.5	283 192	44.4 48.5	0.445
More than 3 hours	204	51.5	192	40.3	0.440

*Chi-square test

Table IV. Logistic Regression analysis of stress score and other variables

Variables*	B±SE**	OR*** (95%CI)	Р	
Factors linked with the Stress Score				
Constant	-2.249 ± 0.231	0.106	< 0.001	
† Year 4 a	1.074 + 0.225	2.926 (1.882-4.549)	< 0.001	
† Year 5 ª	0.493+0.232	1.637 (1.038-2.580)	0.034	
† Year 6 ª	0.543+0.245	1.721 (1.065-2.781)	0.026	
† Female ^b	0.254+0.127	1.290 (1.006-1.654)	0.045	
† Parents are separated °	0.671+0.202	1.956 (1.317-2.905)	0.001	
† Unhappy at Medical Faculty ^d	0.496+0.137	1.642 (1.254-2.150)	< 0.001	
† Feeling of loneliness °	1.277+0.136	3.587 (2.747-4.684)	< 0.001	
† More frequent social network users f	0.301 + 0.128	1.351 (1.052-1.735)	0.019	
[†] Score less on coping with stress ^g	1.053+0.127	2.867 (2.234-3.680)	< 0.001	

*These variables are included in the analysis: Dependent variable; Stress "Higher stress score

Independent variables; year of study, gender, parents' marital status, income level, accommodation, happiness with medical faculty, social network usage, coping with stress, sleep quality, study time spent, feeling of loneliness

**B±SE: regression coefficient and standard error;

***OR: Odds Ratio

†reference categories; a: year 1 students, b: male students, c: parents are together, d: happy to be a medical student, e: feeling of loneliness less, f: social network usage less g: score high on coping with stress.

According to these results, fourth-year, fifth-year and sixth-year students are more stressed than first-year students - respectively 2.9 times (OR=2.93; 95% CI=1.88-4.55; p<0.05), 1.6 times (OR=1.64; 95% CI=1.04-2.58; p<0.05) and 1.7 times (OR=1.72; 95% CI=1.06-2.78; p<0.05) with higher stress scores. Female students are 1.3 times more stressed (OR=1.29; 95% CI=1.01-1.65; p < 0.05), students with separated parents are 1.9 times more stressed than others with parents in stable relationships (OR=1.96; 95% CI=1.32-2.91; p<0.05), and students who are unhappy to be in the medical faculty are 1.6 times more stressed than students who are happier (OR=1.64; 95% CI=1.25-2.15; p<0.05) with higher stress scores. Also, students who are feeling lonely are likely to be 3.6 times more stressed than others who do not report such feelings (OR=3.59; 95% CI=2.75-4.68; p<0.05), frequent social media users are 1.3 times more stressed than others (OR=1.35; 95% CI=1.05-1.74; p<0.05), and students with lower stress coping scores are 2.9 times more stressed than others (OR=2.87; 95% CI=2.23-3.68; p<0.05) with higher stress scores.

DISCUSSION

Our findings confirm that medical faculty students in our study have similar social media usage and preferences as the same age group in other countries. For example; in our study, the social media usage of 91.8% (1203/1311) is much higher than 78% reported from university psychology students in 2008 (42). But this could be due to the fact that there is a difference of 10 years with that study and the use of social media has shown a big increase within that time. Our finding of Facebook coverage of 75.7% is in line with all age groups of 77% in the USA, and a little lower than 88% for the same age group in the USA (43). As is known, Facebook usage goes down with age particularly for the young population, while Instagram and the preference for other social networks increases (44). In 2018 Facebook usage went down to 68% in the USA, even lower than the rate in our study (45). In our study the main reasons for social networking are found to be "to communicate with friends and acquaintances" and "to make new friends", and these reasons are similar to results from other countries (2). In summary, we can say that the social media habits we found in our study are similar social media habits for similar age groups in other countries around the same time. Given that medical students have similar social media habits; their higher levels of stress may be as a result of other factors regarding medical education combined with social media habits (25-27).

The most important finding of our study is that we show that there is a statistically significant relationship between stress and frequency of social media usage, independent of other variables. Of course, this is not a certainty, and it is impossible to determine a causal relationship with the current study design (46). It is not clear if social media usage causes stress, or the other way round, in that stress promotes more frequent social media use. It has been reported that, social networking in the older population provides a good social support mechanism and can reduce stress (47). A previous study carried out on college students in Turkey reveals that social motives, severe depression, anxiety and insomnia positively predicted Facebook addiction (48). Other studies report social media usage increases depression, addiction, reduced self-esteem, negative impact on romantic relationships, fear of missing out, response inhibition and sleep disorders (1, 2, 5-11, 13, 29, 30, 49). Our study and other previous studies suggest that there is a clear if not causal relationship between social networking and the frequency of psychological problems and stress (28, 32). Again, others suggested that as there is a positive link between these phenomena the link could be a causal link (50). Even though causality is not certain we need to be alert to the possibility of the co-occurrence of social networking and stress.

In our study, we found the variables that are linked with both social networking and stress; these are feeling of loneliness, unhappiness with medical education, coping with stress, inability to cope with stress, and being a woman. These have been reported in other studies (6, 26, 51-54), confirming the consistency and conformity of our results.

The high level of stress in medical students is an important health issue as it can cause psychological, behavioural and physical problems (18, 20-24, 30). In our study, we show that there is a relationship between social networking and stress in addition to the other variables found previously and we believe this could be basis for future research on stress in medical students.

One of the limitations of the study is that the scale instrument may not have measured stress fully accurately (37, 39). But this scale is used widely and has already been evaluated as reliable and valid and can be easily applied for this type of study (38-41). The fact that stress itself is not well-defined, and its relationship with some of the independent variables is not clear or well-understood, might weaken the explanatory power of the statistical analyses used. As a result, the relationship between stress and the independent variables in reality may be higher than what we estimated. For example, the fact that we have not found a relationship between stress and sleep quality but others previously did might be due to these reasons (11, 30).

Secondly, because our study has a cross-sectional design we have to be careful not to claim the relationship between social network usage and stress is causal yet it is clear that the relationship between these two variables is not due to chance (46). Clues and results from previous studies suggest that these two variables ought to be examined together. This limitation does not change the fact that frequent social media users should be observed more closely for stress and stress-related psychological problems.

CONCLUSION

In this study it has been shown that the frequency of social media use in medical students is similar to others in the same age groups in other countries, and there seems to be a link between social media use and stress. To improve and support medical education, social media use must be added as a factor in addition to other stress factors already known. We hope that our study increases awareness amongst medical educators that social media can lead to stress on their students. Frequent social network users' psychological, behavioural and physical development should be monitored closely by medical faculty administrators.

Acknowledgements:

Surveyors (Silan Turk, Sule Comlekcioglu, Meryem Sagir, Kadriye Karadag, Ayman Abu Ghdaib, Pelin Cimen, Merve Yilmaz, Burak Ferli, Nursel Eren, Tugba Demir, Bilal Oztas) for data collection; The Scientific Research Projects Coordination Unit of Akdeniz University for their support.

Ethics Committee Approval:

This research complies with all the relevant national regulations, institutional policies and is in accordance with the tenets of the Helsinki Declaration, and has been approved by the Akdeniz University Medical Faculty Clinical Research Ethical Committee, Akdeniz University (approval number: 07/02/2018-94).

Informed Consent:

All the participants' rights were protected and written informed consents were obtained before the procedures according to the Helsinki Declaration.

Author Contributions:

1 UB: Contribution to the conception of the work, analysis, interpretation of data, drafting and revising the work, final approval and agreement to be accountable for all aspects

*2 LD: Design of the work, acquisition, analysis, interpretation of data, drafting and revising

Conflict of Interest:

The authors have no conflict of interest to declare.

Financial Disclosure:

This study was supported by The Scientific Research Projects Coordination Unit of Akdeniz University under number TSA-2018-3537

Akd Med J 2024;10(3) Bilge U. and Donnez L.

- Kuss DJ, Griffiths MD. Social Networking Sites and Addiction: Ten Lessons Learned. Int. J. Environ. Res. Public Health 2017; 14:311.
- Kuss DJ, Griffiths MD. Online Social Networking and Addiction-A Review of the Psychological Literature. Int. J. Environ. Res. Public Health 2011; 8:3528-52.
- Statista (the statistical portal) Number of social media users worldwide from 2010 to 2021 (in billions). Available online: https://www.statista. com/statistics/278414/number-of-worldwide-social-network-users/(accessed on 25 Feb 2019).
- 4. Statista (the statistical portal) Social Media Statistics & Facts. Available online: https://www.statista.com/topics/1164/social-networks/ (accessed on 25 Feb 2019).
- 5. Oberst U, Wegmann E, Stodt B, Brand M, Chamarro A. Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. Journal of Adolescence 2017; 55:51-60.
- Lin LY, Sidani JE, Shensa A, Radovic A, Miller E, Colditz JB, Hoffman BL, Giles LM, Primack BA.Association between Social Media Use and Depression among U.S. Young Adults. Depress Anxiety 2016; 33(4):323–31.
- Banjanin N, Banjanin N, Dimitrijevic I, Pantic I. Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. Computers in Human Behavior 2015; 43:308–12.
- Primack BA, Shensa A, Escobar-Viera CG, Barrett EL, Sidani JE, Colditz JB, James AE. Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. Computers in Human Behavior 2017; 69:1-9.
- Yoon S, Kleinman M, Mertz J, Brannick M. Is social network site usage related to depression? A meta-analysis of Facebook–depression relations. Journal of Affective Disorders 2019; 248:65–72.
- Pantic I. Online Social Networking and Mental Health. Cyberpsychology, Behavior, and Social Networking 2014; 17(10):652-7.
- Surís JC, Akre C, Piguet C, Ambresin AE, Zimmermann G, Berchtold A. Is internet use unhealthy? A cross-sectional study of adolescent internet overuse. Swiss Med Wkly 2014; 144: w14061

- 12. Lee YS, Han DH, Yang KC, Daniels MA, Na C, Kee BS, Renshaw PF. Depression like characteristics of 5HTTLPR polymorphism and temperament in excessive internet users. Journal of Affective Disorders 2008; 109:165–9.
- Muench F, Hayes M, Kuerbis A, Shao S. The independent relationship between trouble controlling Facebook use, time spent on the site and distress. Journal of Behavioral Addiction 2015; 4(3):163–9.
- Turner RJ, Wheaton B, Lloyd DA. The Epidemiology of Social Stress, American Sociological Review 1995; 60(1):104-125.
- Kessler RC, Greenberg PE. Chapter 67: The Economic Burden of Anxiety and Stress Disorders. In: Davis KL, Charney D, Coyle JT, Nemeroff C, editors. Neuropsychopharmacology. The Fifth Generation of Progress. Edited by American College of Neuropsychopharmacology; 2002. p.981-92.
- Kalia M. Assessing the Economic Impact of Stress-The Modern Day Hidden Epidemic. Metabolism 2002; 51(6):49-53.
- Noorbala AA, Rafiey H, Alipour F, Moghanibashi-Mansourieh A. Psychosocial Stresses and Concerns of People Living in Tehran: A Survey on 6000 Adult Participants. Iran J Psychiatry 2018; 13(2):94-102.
- Yang L, Zhao Y, Wang Y, Liu L, Zhang X, Li B, Cui R. The Effects of Psychological Stress on Depression. Current Neuropharmacology 2015; 13:494-504.
- Buitron V, Hill RM, Pettit JW, Green KL, Hatkevich C, Sharp C. Interpersonal stress and suicidal ideation in adolescence: An indirect association through perceived burdensomeness toward others. Journal of Affective Disorders 2016; 190:143–9.
- Buscemi V, Chang WJ, Liston MB, McAuley JH, Schabrun SM. The role of perceived stress and life stressors in the development of chronic musculoskeletal pain disorders: a systematic review. Journal of Pain. 2019; 20(10):1127-39.
- 21. Fanavoll R, Nilsen TI, Holtermann A, Mork PJ. Psychosocial work stress, leisure time physical exercise and the risk of chronic pain in the neck/ shoulders: Longitudinal data from the Norwegian HUNT Study. Int J Occup Med Environ Health 2016;29(4):585-95.

- 22. Gasperin D, Netuveli G, Dias-da-Costa JS, Pattussi MP. Effect of psychological stress on blood pressure increase: a meta-analysis of cohort studies. Cad Saude Publica 2009; 25(4):715-26.
- Li J, Zhang M, Loerbroks A, Angerer P, Siegrist J. Work stress and the risk of recurrent coronary heart disease events: A systematic review and meta-analysis. Int J Occup Med Environ Health 2015; 28:8-19.
- 24. Bot I, Kuiper J. Stressed brain, stressed heart? The Lancet. 2017; 389(10071):770-1.
- Rahman AGA, Al Hashim BN, Al Hiji NK, Al-Abbad Z. Stress among medical Saudi students at College of Medicine, King Faisal University. J PrevMed Hyg 2013; 54:195-9.
- Cihan FG, Kutlu R, Karademirci MM. Occupational Future Concerns and Stress Management Conditions of Intern Doctors. JAREM 2017; 7:122-7.
- Chowdhury R, Mukherjee A, Mitra K,Naskar S, Karmakar PR, Lahiri SK. Perceived psychological stress among undergraduate medical students: Role of academic factors. Indian J Public Health 2017; 61:55-7.
- Goodwin R, Palgi Y, Lavenda O, Hamama-Raz Y, Ben-Ezra M. Association between Media Use, Acute Stress Disorder and Psychological Distress. Psychother Psychosom 2015; 84:253–4.
- Schou Andreassen C, Billieux J, Griffiths MD, Kuss DJ, Demetrovics Z, Mazzoni E, Pallesen S. The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. Psychology of Addictive Behaviors 2016; 30(2):252-62.
- Bilgrami Z, McLaughlin L, Milanaik R, Adesman A. Health implications of new-age technologies: a systematic review. Minerva Pediatr 2017; 69(4):348-67.
- Cheng YS, Tseng PT, Lin PY, Chen TY, Stubbs B, Carvalho AF, Wu CK, Chen YW, Wu MK. Internet Addiction and Its Relationship with Suicidal Behaviors: A Meta-Analysis of Multinational Observational Studies. J Clin Psychiatry 2018; 79(4):17r11761.

- 32. Pontes HM, Taylor M, Stavropoulos V. Beyond "Facebook Addiction": The Role of Cognitive-Related Factors and Psychiatric Distress in Social Networking Site Addiction. Cyberpsychol Behav Soc Netw 2018; 21(4):240-47.
- Orsal O, Orsal O, Unsal A, Ozalp SS. Evaluation of Internet Addiction and Depression Among University Students. Procedia - Social and Behavioral Sciences 2013; 82:445-54.
- Carter A, Forrest JI, Kaida A. Association Between Internet Use and Body Dissatisfaction Among Young Females: Cross-Sectional Analysis of the Canadian Community Health Survey. J Med Internet Res 2017; 19(2):e39.
- 35. Akin A, Akin U. The mediating role of social safeness on the relationship between Facebook (®) use and life satisfaction. Psychol Rep 2015; 117(2):341-53.
- Lazarus RS, Folkman S. Stress, appraisal, and coping. 1984 by Springer Publishing Company, Inc. 11 West 42nd Street. New York, NY 10036-8002
- Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health SocBehav 1983; 24(4):385-96.
- Eun-Hyun Lee RN. Review of the Psychometric Evidence of the Perceived Stress Scale. Asian Nursing Research 2012; 6:121-7.
- Bilge A, Ögce F, Ekti Genc R, Tuna Oran N. Psychometric Properties of a Turkish Version of the Perceived Stress Scale (PSS). Ege Üniversitesi Hemşirelik Yüksek Okulu Dergisi 2009; 25(2):61-72.
- Orucu MC, Demir A. Psychometric evaluation of perceived stress scale for Turkish University students. Stress and Health 2009; 25:103–9.
- 41. Kaya C, Tansey TN, Melekoglu M, Cakiroglu O, Chan F. Psychometric evaluation of Turkish version of the Perceived Stress Scale with Turkish college students. J Ment Health 2017; 20:1-7.
- Subrahmanyama K, Reich SM, Waechter N, Espinoza G. Online and offline social networks: Use of social networking sites by emerging adults. Journal of Applied Developmental Psychology 2008; 29:420–33.

Greenwood S, Perrin A, Duggan M. "Social Media Update 2016". Pew Research Center, November 2016.

Anderson M, Jiang J. "Teens, Social Media & Technology 2018". Pew Research Center, May 2018.

Smith A, Anderson M. "Social Media Use in 2018". Pew Research Center, March 2018.

Hill AB. The environment and disease association or causation. Proc R Soc Med 1965; 58:295-300.

Leist AK. Social Media Use of Older Adults: A Mini-Review. Gerontology 2013; 59:378-84.

Koc M, Gulyagci S. Facebook addiction among Turkish college students: the role of psychological health, demographic, and usage characteristics. Cyberpsychol Behav Soc Netw 2013; 16(4):279-84.

Argyriou E, Davison CB, Lee TTC. Response Inhibition and Internet Gaming Disorder: A Meta-analysis. Addictive Behaviors 2017; 71:54-60.

- 50. Grimes DA, Schulz KF. Bias and causal associations in observational research. Lancet 2002; 359:248–52.
- 51. Aarts S, Peek STM, Wouters EJM. The relation between social network site usage and loneliness and mental health in community-dwelling older adults. Int J Geriatr Psychiatry 2015; 30:942–9.
- 52. Pittman M, Reich B. Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. Computers in Human Behavior 2016; 62:155-67.
- 53. Song H, Zmyslinski-Seelig A, Kim J, Drent A, Victor A, Omori K, Allen M. Does Facebook make you lonely?: A meta analysis. Computers in Human Behavior 2014; 36:446-52.
- Teppers E, Luyckx K, Klimstra TA, Goossens L. Loneliness and Facebook motives in adolescence: A longitudinal inquiry into directionality of effect. Journal of Adolescence 2014; 37:691-9.