Relationship between Social Media Use and Sleep Quality in University Students

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Abstract: Social media (SM) is becoming increasingly important in the lives of young people and very little is known about its relationship with sleep disturbance. The sample of the study consisted of 204 students from a university in Turkey. The relationship between SM use and sleep disturbance in students was evaluated. Social Media Use Integration Scale (SMUIS) and Pittsburgh Sleep Quality Index (PSQI) was used. Sleep quality scale values of males were better than females. Evaluation of SMUIS demonstrated that females used SM more than males. With increasing income level sleep quality increased but SM usage level decreased. The sleep quality level of students who used SM for a long period of time was lower than that of short-term users. Sleep quality of the subjects who used SM less frequent during the day was better than frequent users. As the time spent on SM sites increased, the PSQI values were observed to be adversely affected. The use of SM can take the place of sleep directly; it may take a long time to stop it before sleeping. Our study demonstrated that sleep quality tended to reduce in participants who used SM for longer duration and spend more time for SM. Although sleep quality tended to decrease with increasing SM use in our study no significant relationship could be found between the scales. But there was a trend for decreasing sleep quality with increasing SM use. The adverse effects of SM use on sleep is controversial. More controlled use of SM and its positive effects on young people should be supported. SM may affect social relations including friendships and present different learning options. Planning the duration and times of the day SM is used can prevent negative effects of SM use on sleep quality of young people.
Keywords: Sleep, Social media, Students, Young people.

INTRODUCTION

It appears that the use of the internet and especially social media is becoming increasingly important in the lives of young people. In recent years 95% of young people between 18-33 years of age report active use of it. Social networking sites help to share experiences and social relations and social media programs are indispensable among young people [1,2].

Social media sites have quickly become a central part of young people's lives, and now more than 90% use social media day and night. The use of social media is growing rapidly and very little is known about its relationship with sleep disturbance [3-5]. Decrease in sleep quality is becoming more common in younger ages. Many factors contribute to sleep disturbance in young people. Evidence increasingly supports the relationship between social media use and various features of the young population, including sleep and mental health [6-8]. Previous findings about the use of the Internet also apply to use of social media specifically; because young people are actively using social media in 54% of their time. However, unlike other uses of the internet social media may cause stimulation at every hour of the day. This unique feature is related to sleep quality due to two special reasons. First of all, the stimuli that come in during the night have the potential to disturb sleep; because 86% of young people sleep in bedrooms with phones. In young ages sleep interruption due to incoming text messages is reported and it is possible that social media stimuli cause similar sleep disturbances [7-9]. Secondly, stimuli that come constantly create significant pressure to reach the social media 7/24 and contribute to the fear of being unaware of what is happening. The number of young adults who feel detached or guilty when they couldn't respond to a social media message immediately is increasing. This unique feature of social media provides more reasons to expect an association between it and poor sleep quality [9,10].

In recent years, the number and popularity of social networking sites on the Internet have increased. Social networking and media environments offer people new communication channels. Human beings who do not want to be independent from the social environment they live in were also communicating within their community previously but today, as technology offers

new possibilities, this communication continues on social networking sites [11].

In our study, the relationship between social media use and sleep disturbance in university students was evaluated. By examining sleep quality of university students our aim was to contribute to the steps that could be undertaken. We also evaluated whether social media use affects daily activities of young people due to sleep disturbances.

MATERIALS AND METHODS
The universe of the study consisted of all university students in Turkey and the sample of the study consisted of 204 university students from a state university in Edirne. "Personal Information Form" was used to evaluate students' demographic information and lifestyles. "Personal Information Form" included questions about sleep hours, smoking and alcohol use, eating habits, physical activities, and social media use in addition to the demographic characteristics of participants.

Social Media Use Integration Scale (SMUIS) was used to assess social media use. The original scale was developed by Jenkins-Guarnieri, Wright and Johnson [28] and Turkish adaptation was made by Akin, Ozbay and Baykut [27]. Turkish adaptation study which included 247 university students showed CFA results in two dimensions as in the original form of the scale (social integration and emotional connection; integration with social routines) [1].

To evaluate sleep quality Pittsburgh Sleep Quality Index (PSQI) which is a commonly used instrument to evaluate sleep and is believed to be valid and reliable was used [2-4]. It includes 19 questions and 7 clinical themes. It includes subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medication and daytime sleepiness [5,6]. A PSQI total score equal to or greater than 5 shows poor sleep quality with 90% sensitivity and 67% specificity [5]. Sleep quality was also studies with PSQI by Cole *et al*. In confirmation analysis by these authors the scale was separated and assessed in three factors. Factor 1 consisted of sleep effectiveness (sleep duration and sleep efficiency); Factor 2 consisted of sleep quality (subjective sleep quality, sleep latency, and use of sleep medications); and Factor 3 consisted of daytime dysfunction (sleep disturbances and daytime dysfunction [7]. Turkish validity and reliability study was performed by Agargun

et al. [8]. Validity and reliability of the Turkish version of social media use scale was also established [1].

Data from two scales and personal information form were assessed together; the relationship between sleep quality and social media use was examined. Factors affecting sleep were assessed. Ethics approval was obtained from the University's scientific research ethics committee and an informed consent form was used to record all participants had been volunteered.

All statistical analyses to evaluate the collected data were performed by SPSS 20.0 package program. The data were summarized with appropriate descriptive statistics. Mean and standard deviation were evaluated for numerical variables; frequency and percentage were evaluated for categorical variables. Normal distribution of the data was tested by Shapiro-Wilk test. Bivariate group comparisons were performed with Student's t test. One way analysis of variance was used for comparison of multiple groups. Multiple comparisons after one way ANOVA were evaluated with Bonferroni test. Chi square test was used for the associations between categorical variables. Level of significance for all statistical analyses was accepted as 5%.

RESULTS
Table 1 shows demographic features of the participants. This study is performed in university students between 18-24 years of age. In this study ratio of female students was 76% and males was 24%. Although statistical significance could not be detected sleep quality scale values of males (6.92±3.03) were better than females (7.22±2.68). Evaluation of SMUIS demonstrated that females (32.88±9.69) used social media more than males (31.37±7.98). Evaluation of change according to school type showed that students of Applied Sciences Vocational School had better scores than Health Sciences Nursing School in sleep quality (6.98±2.67 vs 7.34±2.87) and higher level of social media use (33.74± 9.03 vs 31.11±9.48). Evaluation of the place they stayed during school showed that the levels of sleep quality and use of social media by residents at home were higher than residents in the dormitories although the difference was not significant statistically. With increasing income level sleep quality increased but social media usage level decreased. When the statements they used to describe their health were questioned; it was observed that both sleep quality (10.0±3.03) and social media use (29.33±5.46) of those who felt bad in their general life were lower than others.

Table-1: Demographic features, PSQI, and SMUIS values of the participants in the study

	N	%	PSQI	Standard Deviation	P	SMUIS	Standard Deviation	P
Gender								
Male	49	24.0	6.92	3.033	.301	31.37	7.976	.072
Female	155	76.0	7.22	2.683		32.88	9.693	
School								
Vocational School	95	46.6	7.34	2.872	.511	31.11	9.482	.867
Applied Sciences Vocational School	109	53.4	6.98	2.674		33.74	9.028	
Place of residence								
Home	36	17.6	7.08	3.219	.111	31.19	8.190	.348
Dormitory	168	82.4	7.16	2.670		32.80	9.535	
Income Status								
Low	28	13.7	7.18	2.450	.987	32.93	10.303	.176
Medium	168	82.4	7.15	2.842		32.73	9.110	
High	8	3.9	7.00	2.449		26.50	9.103	
The word used to indicate health status								
Poor	6	2.9	10.0	3.033	<0.001*	29.33	5.465	.779
Medium	58	28.4	7.74	2.857		32.69	9.804	
Good	113	55.4	7.06	2.575		32.81	8.523	
Very good	27	13.2	5.59	2.515		31.59	12.007	

*indicates statistically significant difference

We found that 96.6% of the young people in our study were actively using social media sites and the level of social media usage was high. As summarized in Table 2, the sleep quality level of those who used social media for a long period of time was lower than that of short-term users (7.22±2.85 vs 6.88±2.45) and their SMUIS score was higher (33.72±9.27 vs 27.88±8.02). Sleep quality of the subjects who used social media less frequent during the day was better than frequent users (6.48±2.42 vs 7.22±2.80). As the time spent on social media sites increased, the PSQI values were observed to be adversely affected. Mean SMUIS score was higher (35.77) in these subjects as expected. Sleep quality of the subjects who used social media mainly at home was better than the subjects who used outside (6.74±2.91 vs 7.32±2.71). No difference was observed according to electronic devices they used.

Table-2: Evaluation of the subjects according to social media usage and sleep quality

	N	%	PSQI	Standard Deviation	P	SMUIS	Standard Deviation	P
Social media membership								
Yes	197	96.6	7.15	2.798	.177	32.80	8.957	.142
No	7	3.4	7.14	1.773		24.43	15.317	
Duration of social media usage								
Less than 3 years	42	20.6	6.88	2.452	.261	27.88	8.022	.108
More than 3 years	162	79.4	7.22	2.845		33.72	9.269	
Frequency of use of social media sites								
More than once every day	183	89.7	7.22	2.799	.708	33.49	9.101	.130
Once or less every day	21	10.3	6.48	2.421		24.00	6.458	
Time spent on each entry to social media sites								
An hour or less	140	68.6	7.01	2.818	.985	31.03	8.706	.203
More than an hour	64	31.4	7.44	2.648		35.77	9.828	
The most common place to connect to social media sites								
Home	58	28.4	6.74	2.905	.509	30.71	9.427	.827
Outside	145	71.1	7.32	2.710		33.39	9.026	
The device used to connect to social media sites								
Computer	12	5.9	7.42	2.610	.431	32.92	9.150	.673
Phone	192	94.1	7.13	2.782		32.49	9.346	

Table 3, summarizes the relationship between duration and frequency of social media use and PSQI values of study participants. Although not statistically significant sleep quality of subjects using social media for a shorter period of time and less frequently were better than subjects using for a longer duration and more frequently (6.22 vs 7.26).

Table-3: Association between PSQI and duration and frequency of social media use

DURATION OF SOCIAL MEDIA USE	FREQUENCY OF SOCIAL MEDIA USE	PSQI	N	P
Less than 3 years	More than once a day	7.06	33	.703
	Less than once a day	6.22	9	
3 years or more	More than once a day	7.26	150	
	Less than once a day	6.67	12	

*indicates a statistically significant difference

Table-4: Association of duration of social media use and time spent on each entry with PSQI

DURATION OF SOCIAL MEDIA USE	TIME SPENT ON EACH ENTRY TO SOCIAL MEDIA SITES	PSQI	N	P
Less than 3 years	1 hour or less	6.80	30	.480
	More than 1 hour	7.08	12	
3 years or more	1 hour or less	7.07	110	
	More than 1 hour	7.52	52	

In table 4 duration of social media use and time spent on each entry to social media sites were evaluated together. Although there wasn't a statistically significant difference sleep quality of the participants who used social media for less than 3 years and spend less than 1 hour at each entry to these sites was better than participants who used social media for more than 3 years and spend more than 1 hour at each entry.

No statistically significant difference was found for the correlation between SMUIS and PSQI (p; 0.353). But there was a trend for decreasing sleep quality with increasing social media use.

DISCUSSION

Many studies have associated duration of internet use with poor sleep quality [12-15]. Our study evaluated social media use and sleep quality. Previous finding that social media use is more strongly associated with poor sleep because of the higher emotional investment in social media than other uses of the Internet is supported [10]. This is thought to be due to higher duration of social media use in bed and shorter sleep durations. Social media use and poor sleep quality may be associated because there is anxiety about staying away from social interaction when not connected to social media and this anxiety prevents relaxing before sleep [10].

There are studies which focused on the fact that social media use decreases sleep quality because it induces a continuous desire to control what is happening and affects behaviour [16]. There are several possible mechanisms underlying the relationship between SM use and sleep disturbances. SM use may decrease sleep quality directly by 3 ways [17]. First, the use of SM can take the place of sleep directly; it may take a long time to stop it before sleeping so that the sleeping period may be reduced. Second, the use of SM may promote emotional, cognitive and / or physiological stimulation; watching a video or entering a discussion just before bedtime can contribute to the deterioration of sleep. Third, bright light emitted by devices used to connect to SM sites can delay circadian rhythms [18]. Each of these may reduce sleep quality.

It has also been seen that those who have difficulty falling asleep or who has a poor sleep quality may find using SM as a pleasurable way of recovering themselves from the troubles of sleep. Actually, there is evidence that showed longer times spent on internet or SM in subjects with sleeping problems [19]. Using SM to help falling asleep is a widespread practice among adolescents [20,21]. Although the studies did not evaluate SM specifically, considering common use of SM, adolescents are observed to use SM as an adjunct to falling asleep like TV games or PC games. Decreased sleep quality may cause increased SM use which may aggravate sleep problems. Compared with more passive activities such as watching TV and reading books SM includes many stimulating interactions; this may be more stimulating and intriguing and thus potentially more harmful for sleep [20-24]. Our study demonstrated that sleep quality tended to reduce in participants who used social media for longer duration and spend more time for SM.

Although sleep quality tended to decrease with increasing SM use in our study no significant relationship could be found between PSQI and SMUIS scales. However, there is a need for obtaining more results. The adverse effects of SM use on sleep are controversial. More controlled use of SM and its positive effects on young people should be supported. Studies have demonstrated that young people know social media and see SM as an indispensable part of

everyday life. When used appropriately and in case of necessity the Internet increases skills and knowledge of students [22-26]. Similarly SM can encourage technology to integrate effectively into a variety of learning environments. Social media may affect social relations including friendships and present different learning options. Planning the duration and times of the day SM is used can prevent negative effects of SM use on sleep quality of young people.

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