Research Article

THE EFFECT OF SOCIAL MEDIA USE LEVEL AND SLEEP QUALITY ON WORK PERFORMANCE AMONG UNIVERSITY EMPLOYEES

Berkhan TOPAKTAŞ*[1] *Neşe YAKŞİ[2]*

[1] Amasya University, Faculty of Medicine, Department of Public Health, Amasya, Türkiye
[2] Amasya University, Faculty of Medicine, Department of Public Health, Amasya, Türkiye
* Corresponding author; berkhan@yandex.com

Abstract: It is important to determine the level of social media addiction in the working population and to determine its relationship with sleep quality, and how both variables affect the work performance of the employees. In this study, it was aimed to determine the effects of social media addiction levels and sleep quality of employees at Amasya University on their work performance. The population of the cross-sectional study consisted of staff in all employment types at Amasya University. Sociodemographic data form, Social Media Addiction Scale-Adult Form (SMAS-AF), Pittsburgh Sleep Quality Index (PSQI), and Work Role Functioning Questionnaire (WRFQ) were applied by face-to-face survey method between August 15 and October 15, 2022. A total of 148 individuals participated in the study. The total score on the SMAS-AF was 40.0 (20-84), the PSQI total score was 6.0 (1-15) and the WRFQ total score was 92.5 (6-100). The WRFQ was found to be lower in individuals with associate degree or higher education, females, and academic staff (p=0.042; p=0.010 and p=0.008 respectively). The WRFQ total score indicated low, moderate, and negative significant correlations with the SMAS-AF and PSQI total scores (r= -0.333 and -0.344, respectively, p< 0.001). It was found that as the level of social media addiction increased and sleep quality deteriorated, work role functionality was negatively affected. A holistic approach, including behavioral problems, should be exhibited in the evaluation of work performance.

Keywords: Employees, sleep quality, social media addiction, universities, work performance

1. Introduction

Addiction is the continuation of taking the substance despite the physical, mental, or social problems that occur during the process of taking a substance to achieve a significant effect, not being able to quit despite the desire to quit, increasing the amount of the substance taken gradually to achieve the same effect, and not being able to stop the desire to take the substance [1]. Various internet-based networks that allow users to interact with others verbally and visually are called "social media" [2]. Phrases like social media addiction, internet addiction, smartphone addiction, and compulsive social media usage can be used interchangeably to describe maladaptive use of social media, marked by addiction-like symptoms or diminished self-control. Of these terms, "social media addiction" is the most frequently utilized and is characterized as a psychological addiction involving the manifestation of behavioral addiction symptoms [3]. In the literature, such addictions are generally accepted as behavioral addictions [4]. Many studies show that social media addiction is associated with psychiatric disorders such as anxiety, depression, obsessive-compulsive disorder, and hyperactivity [5, 6]. In addition, excessive use of social media can be accompanied by poor work performance and sleep

problems [7]. A negative relationship was found between social media addiction, sleep quality, and employee performance. That is, employees' sleep quality has been shown to be an underlying psychological reason that explains how social media addiction is related to employee performance [8]. It is estimated that approximately 4.6 billion people in the world actively use social media [9]. According to Turkish Statistical Institute data, for 2022, 99.2% of the households in Türkiye have a mobile/smartphone subscription and 94.1% have internet access [10]. The fact that the internet and smartphones are so easily accessible brings the risk of social media addiction becoming a problem on a societal scale. Because so many scales are used to measure social media addiction, the prevalence of social media addiction ranges from as low as 0% to as high as 82% in a meta-analysis of 63 independent samples from 32 countries [11]. In a study conducted in Türkiye, it was shown that 13% of the young population spends more than 6 hours a day on social media platforms [12]. Many studies are showing that poor sleep quality is correlated with excessive social media usage, which can lead to deterioration in mental health in the young population [13]. It is important to determine the social media addiction level in working individuals as well as the young population and to determine its relationship with sleep quality, and how both variables affect the work performance of the employees. This study aimed to determine the effects of social media addiction levels and sleep quality on staff working at Amasya University on their work performance.

2. Materials and Methods

2.1. Research Design

This cross-sectional study took place between 15/08/2022 and 15/10/2022 at Amasya University Rectorate, Faculty of Medicine, Faculty of Health Sciences, and Sabuncuoğlu Şerefeddin Vocational School of Health Services, which were selected with simple random sampling method. The face-to-face survey method was used in data collection.

2.2. Participants and Sample Size

The population of the study was 915 people working in the central district campuses of Amasya University. In terms of work performance score, which is the dependent variable of the study, the minimum sample number was calculated as 101 with 5% type-1 error, 90% power, and 4% deviation, when the mean was 91.1 and the standard deviation was 11.0 [14]. While working at Amasya University and agreeing to participate in the study were considered inclusion criteria, no exclusion criteria were used.

2.3. Data Collection Tools

In the study, sociodemographic data forms prepared by the researchers, Social Media Addiction Scale - Adult Form (SMAS-AF), Pittsburgh Sleep Quality Index (PSQI), and Work Role Functioning Questionnaires (WRFQ) were applied.

SMAS-AF is a scale developed by Şahin and Yağcı [15] to determine the social media addiction of adults in the 18-60 age group. The scale is a five-point Likert type and consists of 20 items. The scale has a minimum score of 20 and a maximum score of 100. Higher scores indicate a higher level of social media addiction. Items 5 and 11 on the scale are scored in reverse. The scale comprises two sub-dimensions: Virtual tolerance (items 1-11) and virtual communication (items 12-20). The Cronbach's Alpha internal consistency coefficient of the scale was 0.94, and the test-retest reliability coefficient was 0.93. In this study, the Cronbach's Alpha internal consistency coefficient was found to be 0.91. Findings regarding the validity and reliability of the scale show that SMAS-AF is a measurement tool that can be used to determine adults' social media addiction.

The PSQI was used to determine the sleep quality of the participants. It was developed by Buysse et al [16] in 1989 and its diagnostic sensitivity was found to be 89.6% and specificity 86.5%. The validity and reliability study for Turkish was performed by Ağargün et al [17]. In our study, Cronbach's Alpha internal consistency coefficient calculated by including closed-ended questions was 0.81. PSQI, which evaluates the sleep quality in the last month, includes a total of 24 questions. Nineteen of these questions are self-reported and require patient responses. The five questions are responded to by the spouse or a roommate and are solely used for clinical information, not factored into the scoring. The last five questions will not be used in this study. The final self-report question pertains to the presence of a roommate or spouse and is not considered for scoring purposes. PSQI consists of seven items that assess subjective sleep quality, sleep delay, sleep duration, sleep efficiency, sleep disturbance, use of sleeping pills, and impairment in daytime work. Each response is assigned a score between 0 and 3 based on the frequency of symptoms. A score of 0 is given if the occurrence is absent in the last month, 1 if it happens less than once a week, 2 if it occurs once or twice a week, and 3 if it takes place three or more times a week. The total score obtained varies between 0-21, and high values indicate poor sleep quality and high sleep disturbance level. A total score exceeding 5 signifies inadequate sleep quality.

The WRFQ was used to evaluate work performance. This questionnaire, which was developed in the USA [18], gives a percentage of the time that individuals experience difficulties while performing their jobs in their working lives. It is a five-point Likert-type scale that includes 27 questions in total and 5 sub-headings: working order (5 questions), physical situation (6 questions), social situation (3 questions), psychological state (6 questions) and productivity (7 questions). Each item is coded as 0= "always (100%)", 1= "most of the time", 2= "half of the time (50%)", 3= "sometimes", 4= "never (0%)", and 5=" does not apply to my job". "Does not apply to my job" scores are converted to missing values. For each subscale and the entire scale, the item scores are summed, divided by the number of items, and then multiplied by 25 to obtain scores ranging from 0% (always have difficulty) to 100% (never experience difficulty). If the percentage points are close to 20%, it shows that the work performance decreases and there is a loss of work-related efficiency and productivity. Higher values indicate better functionality at work. Turkish validity and reliability studies of the questionnaire were conducted by Irmak et al in 2011[19]. In this study, we found Cronbach's Alpha internal consistency coefficient to be 0.96.

2.4. Statistical Analysis

Once the data collected from the study were encoded, they were input into the SPSS 22.0 software package and subjected to analysis. While evaluating the data, continuous variables were expressed as median (minimum-maximum values), and categorical data were expressed as numbers (%). In the statistical analyses, the normal distribution fit of the measurement variables was assessed using the Kolmogorov-Smirnov test. The Mann-Whitney U test and the Kruskal-Wallis H test were used to compare continuous variables. Correlation coefficients were calculated using Spearman's rank correlation test. The correlation coefficient was classified as; 0.05-0.29: low or insignificant correlation, 0.30-0.39: low moderate correlation, 0.40-0.59: moderate correlation, 0.60-0.69: good degree of correlation, 0.70-0.74: perfect correlation, and 0.75-1.00: excellent correlation. A significance level of $p < 0.05$ was considered for all tests.

2.5. Ethical Considerations

Data collection was started with the permission of Amasya University Rectorate. Approval for the study was granted by the Non-Interventional Clinical Trials Ethics Committee of Amasya University (date/number: 07/07/2022, 7-77). All participants voluntarily participated in the study and written

permission was obtained through an informed voluntary consent form. The research was conducted under the principles of the Declaration of Helsinki.

3. Results and Discussion

The median age of 148 participants in the study was 38.0 (21-72) years and 95 (64.2%) were male. It was determined that 106 (72.6%) of the participants were married, 103 (72.0%) had associate degree or higher education, and 85 (57.8%) were working in administrative staff status (Table 1).

Table 1. Distribution of the socio-demographic characteristics of the participants

Socio-demographic characteristics	Number[†]	%
Gender		
Male	95	64.2
Female	53	35.8
Marital status		
Married	106	72.6
Single/divorced	40	27.4
Education level		
Primary school	4	2.8
Middle school	3	2.1
High school	33	23.1
Associate's degree and above	103	72.0
Employment type		
Administrative Staff	85	57.8
Academical staff	26	17.7
Permanent worker	26	17.7
Contracted staff	10	6.8

[†]Due to missing answers, the total number could not be reached for some variables. Percentages were calculated based on valid answers.

In the total of the participants, the SMAS-AF total score was 40.0 (20-84), the PSQI total score was 6.0 (1-15), and the WRFQ total score was 92.5 (6-100). While 67 (48.2%) of 139 people who answered the PSQI completely had a score of 5 points or less, 72 (51.8%) people had a score above 5 points. WRFQ was found to be lower in individuals with associate degrees or higher education, females, and academic staff (p=0.042, p=0.010, and p=0.008, respectively) (Table 2).

Table 2. Distribution of scale scores according to sociodemographic characteristics

Socio-demographic characteristics	SMAS-AF[¶] Median (Min-Max)	p	PSQI[¶] Median (Min-Max)	p	WRFQ[¶] Median (Min-Max)	p
Age (years)						
Under 30	39.0 (27-76)	0.715[†]	6.0 (1-15)	0.904[†]	95.1 (6-100)	0.373[†]
Thirty and above	40.0 (20-84)		6.0 (1-15)		92.2 (29-100)	
Gender						
Male	40.5 (23-84)	0.279[†]	6.0 (1-15)	0.420[†]	95.3 (6-100)	**0.010[†]**
Female	39.0 (20-79)		6.4 (2-14)		86.7 (52-100)	

Table 2. Continued.

Socio-demographic characteristics	SMAS-AF¶ Median (Min-Max)	p	PSQI¶ Median (Min-Max)	p	WRFQ¶ Median (Min-Max)	p
Marital status						
Married	39.0 (20-84)	0.835†	5.0 (1-15)	0.509†	93.7 (29-100)	0.610†
Single/divorced	40.0 (23-81)		6.0 (1-15)		91.8 (6-100)	
Education level						
High school and below	39.0 (25-81)	0.628†	5.0 (1-15)	0.804†	96.7 (6-100)	**0.042†**
Associate's degree and above	43.0 (20-84)		6.0 (1-15)		90.6 (29-100)	
Employment type						
Administrative staff	39.0 (20-72)		6.0 (1-15)		94.0 (29-100)	
Academical staff	50.5 (24-84)	0.095‡	5.5 (1-13)	0.847‡	82.4 (49-100) §	**0.008‡**
Permanent worker	38.0 (26-81)		4.0 (1-13)		96.0 (50-100)	
Contracted staff	38.5 (26-76)		6.0 (2-15)		93.7 (6-1009	

†Mann-Whitney U test
‡Kruskal-Wallis H test
§The subgroup from which the difference originates
¶ PSQI: Pittsburgh Sleep Quality Index, SMAS-AF: Social Media Addiction Scale-Adult Form, WRFQ: Work Role Functioning Questionnaire

There was no significant difference between genders in academic staff and permanent workers in terms of the total score of WRFQ (p=0.438, and 0.605). Among the administrative staff, WRFQ score was calculated as 96.2 (29-100) for males and 86.7 (64-100) for females (p=0.008). Those with a total PSQI score above 5 had a higher SMAS-AF score and a lower WRFQ score (p< 0.001) (Table 3).

Table 3. Distribution of SMAS-AF and WRFQ scores according to sleep quality

PSQI†	SMAS-AF‡ Median (Min-Max)	p†	WRFQ ‡ Median (Min-Max)	p†
Good sleep quality (≤5)	37.0 (20-72)	<0.001	96.1 (29-100)	<0.001
Poor sleep quality (>5)	47.0 (23-84)		86.4 (6-100)	

†Mann-Whitney U test
‡ PSQI: Pittsburgh Sleep Quality Index, SMAS-AF: Social Media Addiction Scale-Adult Form, WRFQ: Work Role Functioning Questionnaire

WRFQ total score indicated a low moderate and negative significant correlation with SMAS-AF and PSQI total scores (r = -0.333 and -0.344; p< 0.001). While no significant correlation was found between SMAS-AF and WRFQ in the participants with a PSQI total score of 5 points or less (p=0.197), a low and negative correlation was found between SMAS-AF and WRFQ in the participants with a PSQI total score above 5 points. (r = -0.273; p<0.05).

The total score of WRFQ, which was used to measure the main dependent variable of the study, was determined at the level of 92.5. In a study in which the scale was applied to healthy university employees in our country, the total score before an exercise intervention was found to be 91.1 [14]. The total WRFQ score was calculated as 74.1 for nurses who declared that they had not experienced musculoskeletal pain in the last six months [20]. As can be seen, in our study and in the study whose sample consisted of office workers at the university, the level of work performance was higher than that of health workers such as dentists and nurses. This situation is thought to be related to the fact that healthcare professionals have a longer standing time due to their jobs and mostly work in inappropriate ergonomic positions.

In this study, the work performance of female employees was found to be lower than that of males. The number of studies in which the WRFQ is used directly on this subject is very few. In one of these studies, two subscales of the questionnaire were used in the sample representing the general staff in the Netherlands and no difference was found according to gender [21]. When the results of the studies that include different scales measuring the job performance of the university administrative staff are examined, the work performance of males and females was found to be similar in a study conducted in the Philippines [22]. In Türkiye, it has been seen that the gender variable does not affect job performance in the studies conducted on the academic and administrative staff of the universities located in the provinces of Istanbul and Kırklareli [23, 24]. In our study, it was observed that the total WRFQ scores among academic staff, permanent workers, and contracted staff were similarly distributed among gender groups, similar to the literature, while female administrative staff described their job performance at a lower level, which is a remarkable finding. More research is needed to understand the reasons behind the low job performance of female managerial staff and whether this situation is related to organizational policies or social dynamics.

Among the studies examining the effect of the level of education on the working performance of university employees, no study using the WRFQ scale was found, but it is seen that different results were obtained in the studies using various scales measuring job performance. A study in the Philippines found no effect of education level on job performance among university workers [22]. Among the studies in Türkiye, there was no difference in terms of job performance between the groups of employees with undergraduate and graduate education at four universities in Istanbul [24]. In the study conducted among Kırklareli University employees, the job performances of the employees with a bachelor's degree were found to be lower than those of high school graduates and those with a master's degree or higher [23]. In the sample of our study, the difference between the two groups, employees with a high school or below education level and those with an associate degree or higher education level, was examined and the working performance of the employees with an associate degree or higher education level was determined to be more inadequate. The different results obtained show that it is not possible to talk about a definite effect of education level on the working performance of university employees. In terms of the results of this study, another finding parallel to the effect of education level on working performance is that academic staff's work performance is lower than other university employees among employment types. Considering that there are employees with associate degrees or higher education among the administrative personnel, the main determinant variable in terms of working performance may be the type of employment rather than the level of education and, as a result, the internal dynamics brought by the working process. The reason for this finding may be that the academic staff declare their perceived job performance to be lower as a result of the fact that they are more mentally intense as a requirement of the work they carry out, that they have to constantly produce scientific studies and that the professional goals to be achieved are a more pressing factor.

Among the main findings of the study was that the increase in social media addiction negatively affected the work performance of university employees. A study conducted in the USA showed that social media addiction is associated with important workplace variables such as work burnout and work-family balance, and negatively affects job performance [25]. As the time spent on social media increases while at work, it is understandable and expected to see a decrease in workplace responsibilities that need to be fulfilled. However, it is also important whether the decrease in work performance is due to the time-wasting feature of social media or through other mechanisms. In a review on the subject, it was suggested that cognitive function deficiencies may occur due to subcortical structure dysfunctions, which is a component of the reward system, in people who use social media frequently [26]. Another possible reason for the negative effect of social media addiction on work performance is sleep disorder. Since the data in our study did not comply with the normal distribution, it was not possible to determine

the effect level of social media addiction and sleep quality on work performance by partial correlation analysis by eliminating the confounding effects of each other. Because only the PSQI has a determined predictive value among the scales used, when the correlations between WRFQ and SMAS-AF in groups with good and bad sleep quality were examined, no negative effect of social media addiction on work performance was determined in the group with good sleep quality. However, in the group with poor sleep quality, it was determined that as social media addiction increased, work performance decreased. This finding suggests that social media addiction may affect work performance through sleep quality disorder. Among the findings of the study, the fact that the sleep quality is worse in the participants with higher social media addiction and that the work performance deteriorates as the sleep quality decreases supports this proposition. In general, studies show that sleep quality deteriorates as a result of excessive use of social media. In the study, which consisted of mostly American adults, it was found that the quality of sleep decreased as the time spent on social media networks increased [6]. In a university in Saudi Arabia, poor sleep quality was observed among employees, especially those who use a smartphone for more than 60 minutes before bedtime [27]. In a study conducted in England, similar to this study, it was shown that increased addiction to social networking sites was associated with decreased sleep quality and daily cognitive failures, but unlike this study, it was found that increased dependence on social networking sites had a direct effect on cognitive failures even when the effect of sleep quality was controlled [7].

4. Conclusion

As a result, among the university employees, it was determined that the working performance of employees with associate degrees and above education level, that of academic staff, and that of females was worse. It was found that as the level of social media addiction increased and sleep quality deteriorated, work role functionality was negatively affected. It was found that the negative effect of social media addiction on work performance was more pronounced, especially in employees with poor sleep quality. The relationship observed between the variables examined in this study shows that a holistic approach, including behavioral problems, should be exhibited while evaluating work performance. This study can be considered a step to help us understand the effects of social media use on sleep and work performance. However, research on this subject needs to continue and be further deepened.

Limitations of the study:

The primary limitation of the study is the cross-sectional nature of the study and therefore the inability to determine the direction of the causal relationship between social media addiction, sleep quality, and work performance. While the decrease in work performance may be a result of social media addiction and deterioration in sleep quality, low work performance and the accompanying mental problems may have led to social media addiction and deterioration in sleep quality.

Acknowledgments:

There is nothing to declare.

Ethical statement:

This study was conducted by Helsinki Principles, and approval was granted by the Non-Interventional Clinical Trials Ethics Committee of Amasya University (date/number: 07/07/2022, 7-77).

Conflict of interest:

There is nothing to declare.

Authors' contributions:

B.T.: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Supervision, Validation, Writing - original draft, Writing - review & editing.
N.Y.: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Supervision, Validation, Writing - original draft, Writing - review & editing.
All authors read and approved the final manuscript.

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