

## EXAMINING THE EFFECTS OF SMARTPHONE USE AT WORK ON JOB PERFORMANCE AND WORK ATTITUDES

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### ABSTRACT

This study examines the effects of excessive smartphone use at work and examined its effects on job performance and work attitudes. Data were collected from a sample of 486 participants who work in IT and construction companies located in Ankara. In the analysis, smartphone addiction and daily duration of smartphone usage at work were found to be negatively associated with job performance. Meaningful differences were detected in terms of both gender and industry type. Female participants were found to have more daily smartphone use at work than male participants. Those who work for the IT company were also observed to have more daily duration of smartphone use at work than those from the construction company. Job satisfaction and organizational commitment had positively associated with each other and with job productivity. However, no meaningful relationship was detected between smartphone addiction and both job satisfaction and organizational commitment. It is concluded that the level of excessive smartphone use should be determined considering both gender and industry type in order to develop a balanced smartphone use arrangement, which would not harm the productivity at work.

**Keywords:** Smartphone Addiction, Technology-work Conflict, Job Satisfaction, Organizational Commitment, Job Performance

## İŞ YERİNDE AKILLI TELEFON KULLANIMININ PERFORMANS VE İŞ TUTUMLARI ÜZERİNE ETKİLERİNİN İNCELENMESİ

### ÖZ

Mevcut çalışma iş yerinde aşırı derecede akıllı telefon kullanımının iş performansı ve iş tutumları üzerindeki etkilerini incelemektedir. Çalışmanın verileri Ankara'da faaliyet yürüten, bilgi teknolojileri ve inşaat sektöründeki 486 çalışandan elde edilmiştir. Analiz sonuçları akıllı telefon bağımlılığının ve iş yerinde günlük akıllı telefon kullanımının iş performansı üzerinde negatif bir etki yarattığını ortaya koymuştur. Ek olarak, hem sektör hem de cinsiyet bazında anlamlı farklılıklar tespit edilmiştir. Kadın katılımcıların iş yerinde erkek katılımcılara göre daha fazla günlük akıllı telefon kullandığı görülmüştür. Yine, bilgi teknolojilerinde çalışan bireylerin inşaat sektöründe çalışanlardan daha fazla akıllı telefon kullandığı tespit edilmiştir. Ayrıca iş tatmini, işe bağlılık ve üretkenlik birbirleriyle ilişkili bulunmuştur. Ancak akıllı telefon bağımlılığı ile hem iş tatmini hem de örgütsel bağlılık arasında anlamlı bir ilişki saptanmamıştır. Bu anlamda, işyerinde verimliliğe zarar vermeyecek dengeli bir akıllı telefon kullanım düzenlemesi geliştirmek için aşırı akıllı telefon kullanım düzeyinin hem cinsiyet hem de sektör türü dikkate alınarak belirlenmesi gerektiği sonucuna varılmıştır. **Anahtar Kelimeler:** Akıllı Telefon Bağımlılığı, Teknoloji-iş Çatışması, İş Tatmini, Örgütsel Bağlılık, İş Performansı

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### **Introduction**

Smartphones have increasingly become an essential part of our life. 5.1 billion mobile users have been reported to exist in the world in 2019, 4.3 billion of which have a minimum one social media account (Digital, 2019). More than half of the population, almost 45 million people is reported to have smartphones in Turkey, in 2018 (Yıldız Durak, 2017, p. 1). Smartphones undoubtedly today are, more than just ways of communication as mobile phones once were. They have turned into very ingenious tools providing at the same time entertainment, social networking, shopping, learning, educating, trading, gaming and many more other functions. They allow for people to be connected anytime and anywhere if only there exists an internet connection.

This magic invention today has the potential to alter not just personal lives, but also organizations and communities. It has both positive and negative effects on people's lives and organizations' performance. However, the problems they create, have been argued to override their benefits, increasingly much more. This argument deserves serious attention regarding the extent of their use intensity. Indeed, smartphone addiction is rising at an unprecedented speed. More and more people sleep and wake up with their phones at hand. Smartphone use has been argued by Duke and Montag (2017, p. 90) to have the potential to turn into an addictive behavior, which could effect on people's daily lives. It is reported that people themselves admit that their smartphone usage has reached to an excessive point, where it causes serious negative consequences (Horwood and Anglim, 2019, p. 44).

The term "smartphone addiction" has been defined as the disproportionate and hysterical use of smartphones so that it disorders people's daily lives (Demirci, et. al., 2014; Jeong and Lee, 2015). A considerable body of evidence have been reported in the studies regarding relationship between excessive smartphone use and its negative outcomes such as physical health (Kim, Min, Kim and Min, 2017), poor sleep quality (Demirci, Akgonul and Akpınar, 2015), depression and anxiety (Elhai et al., 2017; Beranuy et al., 2009; Cheever et al., 2014). Physical and mental fatigue are some other symptoms, which were reported to have been caused by smartphone addiction (Davey and Davey, 2014; Rosen, Carrier and Cheever, 2013).

On the organizational level, a heated debate is going on regarding the direction of smartphone's effects on the work productivity and job performance. While some argue that extensive smartphone use affects negatively on employees' job performance, others contend that it fosters to some extent the productivity of employees by balancing work-life realms. For example, decreased job performance and work productivity were suggested to be associated with extensive smartphone use (Shepherd, 2011; Nucleus, 2009; Cao and Yu, 2019). Many companies have been reported to ban social media applications from the workplace and consider them as a waste of time (Ali-Hassan et al., 2015, p. 66). On the other hand, there have been a range of studies, which have suggested that a meaningful correlation existed between job performance and work-life balance (Smith, Smith, and Brower, 2016; Leftheriotis and Giannakos, 2014; McAfee, 2006). However, what is clear is that the widespread presence and dominance of smartphones make the boundaries between work and the life quite vague (White and Thatcher, 2015).

This pervasiveness and massive effects of smartphones has shifted the academic focus from internet addiction to smartphone addiction. Although there has been a huge body of academic research on smartphone addiction in the last decade, most of those

studies have concentrated on adolescents and particularly students. Despite the huge effects of smartphone addiction on work life, not too much emphasis has been given to the relationship between smartphone use and work outcomes from the point of organizational context. There is not enough empirical evidence concerning the impact of smartphones on work and job performance, which will help managers shape organizational strategies with respect to the use of smartphones in the workplace. An urgent need is felt to comprehend the relationship between smartphone use and their impact on job outcomes. This study enriches smartphone addiction research through examining the excessive smartphone use at work, to obtain an understanding of how the overuse of smartphones does impact on job performance and other various work attitudes in the workplace. Thus, in this paper, data from professionals were gathered to test the hypotheses of to what extent and in which direction excessive smartphone use creates effects on job performance.

First, a literature review will be provided. Then, the research model will be expounded with the hypotheses. The characteristics of the sample and the data collection will be described in brief. Thereafter, statistical analyses and their results will be presented. In the last section, after discussing the findings in light of the existing literature, contributions of this study will be elaborated.

### **Literature Review**

Smartphones has changed not only the way people communicate with each other, but also the way they engage with their environment. Communication, entertainment, social networking, education and gaming are just some of the few reasons why people use smartphones (Kwon et al., 2013). Whatever reason people prefer using smartphones, an excessive use of smartphones which is difficult to control and affect people's lives negatively is called smartphone addiction (Park and Lee, 2012, Lee, Ahn, Choi and Choi, 2014). It has been labeled as an "addiction-like behavior" urging individuals to use their mobile phones compulsively, which leads to adverse consequences of daily life (Takao, Takahashi and Kitamura, 2009; Demirci et al., 2014; Kwon et al., 2013). In short, the term "smartphone addiction" refers to using smartphones for whatever purposes such as communication, information, or social media, with an excessive and uncontrollable manner. Terms such as "problematic smartphone use", "excessive use", "compulsive use", and "compensatory use" have also been used interchangeably to describe smartphone addiction (Long et al., 2016). Problematic smartphone use has been depicted as a type of compulsive usage, which affects negatively on productivity and physical health (Horwood and Anglim, 2019). The daily duration of calling and time spent while using other functions of mobile phones are related to problematic phone usage and may lead to addiction (Augner and Hacker, 2012). Studies have shown that problematic smartphone usage is negatively associated with well-being (David et al., 2018; Hughes and Burke, 2018), mental health (Lapierre and Lewis, 2018; Rotondi et al., 2017), and anxiety (Hong, Chui and Huang, 2012; Arpacı et al., 2017).

Smartphone addiction has been contended to exert various harmful effects on both individuals and organizations (Wang et al., 2015). It has been argued to be associated with psychological problems on the individual level as mentioned before, such as stress, anxiety, and depression (Müller et al., 2014; Lepp, Barkley and Karpinski 2014; Enez Darcin et al., 2016; Augner and Hacker, 2012; Van Deursen, Bolle, Hegner and

Kommers, 2015; Samaha and Hawi, 2016). On the organizational level, their personal use at work beyond work necessities has been argued to be controversial. Several authors have reported various negative effects of extensive smartphone usage on organizations (Kwon et al., 2013; Lanaj, Johnson and Barnes, 2014). Those addicted to smartphones tend to spend time to use their phones, which is regarded as to be beyond what is expected by work requirements. They devote more time and energy to using their smartphones than they dedicate to concentrate on working. They tend to be obsessed with their smartphones more than they worry about their work requirements and responsibilities. Excessive preoccupation with their phones while performing their jobs, anxiety when their phones are not in close proximity, being unable to refrain from using smartphones in situations where it is restricted, and productivity loss have been reported to be correlated with smartphone addiction (Kwon et al., 2013).

Although it is quite a hard job to make a clear distinction between the usage of smartphones for professional necessities and other purposes in the work place, “excessive smartphone use at work” refers to a situation in which an employee spends excessive time and energy using smartphone more than he or she devotes to work requirements. Rapid increase in the smartphone usage has been argued to develop a serious kind of addiction, which is associated with some certain effects on work attitudes such as commitment to work and work satisfaction. For example, smartphone addiction has been reported to be associated with poor academic performance (Rosen, Carrier and Cheever, 2013; Kibona and Mgaya, 2015). Excessive smartphone usage has also argued to induce stress and effect negatively the task performance (Brooks, 2015).

Social media use is usually considered as synonymous with usage of smartphones due to their pervasiveness (Giunchiglia et al., 2018, p. 178) and has played a vital role in our lives over the past decades. A massive amount of smartphone use nowadays, involves social networking. It is so usual that even employees are using them in the workplace during work hours, almost anytime and anywhere, without hesitating any moment considering whether it impedes the work they perform or not. In short, today, social networking addiction is usually associated with smartphone addiction (Kuss and Griffiths, 2017). Hence, in this study, social networking addiction will be used interchangeably with smartphone addiction.

### **Job Performance**

Smart phone use by employees in the workplace, has been controversial in the literature. While some argue that it leads to a better employee productivity (Bennett et al., 2010; Patel and Jasani, 2010), others argue that it causes loss of performance (Shepherd, 2011). For those on the opposite side, excessive smartphone use in the workplace is argued to lead to distraction, reducing employees’ work performance and could lessen productivity (Nucleus, 2009; Shepherd, 2011). According to Kelly Global Workforce Index, it is revealed that 43% of respondents believed that social media use in the workplace impacted on productivity negatively (Kelly Services, 2012). Excessive social media use is also argued to cause technology conflict at work (Cao and Yu, 2019, p. 84).

A negative relationship was also reported to have been detected between extensive smartphone use and productivity in Duke and Montag (2017, p. 93) study. They attributed this finding to the time consumed on the smartphone at work and interruptions stem from the smartphones. Smartphones can hinder employees to perform their jobs

uninterruptedly (Montag and Walla, 2016). Studies revealed that interruptions had caused a negative effect on employees, which requires additional resumption time to complete the task (Zijlstra et al., 1999). For example, Nucleus Research (2009) suggested that access to Facebook at work resulted in a 1.5 percent decrease in job productivity. Alton et al. (2014) found that smartphone interruptions, even shorter than 3 seconds, had disrupted participants' concentration and led to an increase in the errors on their tasks. Cameron and Webster (2005, p. 98) has also argued that while instant messaging through smartphone technologies may increase connectivity, they also decrease performance due to the increased interruptions.

With respect to the academic productivity, smartphone addiction is argued to affect this performance negatively in adolescence (Hsiao, Shu and Huang, 2017; Lepp, Barkley and Karpinski, 2015). Kirschner and Karpinski (2010) had revealed in their research that students, who spent more time on Facebook, observed to had poorer academic performance. Studies revealed that spending an excessive amount of time on smartphone screens leads to a decrease in academic performance (Judd, 2014).

On the contrary, a variety of studies have revealed a meaningful relationship between work-life balance and job performance (Smith, Smith and Brower, 2016). They contend that, organizations which have not attain required amount of work-life flexibility through enabling smartphone use, tend to negatively impact on job performance (Kelly et al., 2014). For example, Leftheriotis and Giannakos (2014) suggested that social media might contribute to motivating work performance. Setting out from this point forward, many organizations encourage their employees to use the internal blogging platforms at work (McAfee, 2006). It is generally agreed that these corporate blogging systems provide a useful platform for collaboration among co-workers and eventually foster productivity (Huh et al., 2007). Bennett et al. (2010) also reported various positive effects of smartphone use in the workplace as increased productivity, and improved job satisfaction.

### **Organizational Commitment**

Organizational commitment, in simple terms, is defined as the relative strength of an employee's identification with, emotional attachment to and involvement in an organization (Porter et al., 1974; Mowday, Steers and Porter, 1979; Allen and Meyer, 1990; Allen and Meyer, 1996). Allen and Meyer (1990) emphasize that there are three different aspects of organizational commitment namely affective commitment, continuance commitment and normative commitment. Affective commitment stresses the employees' emotional attachment to their organization, while normative commitment focuses on values, which the employee attaches importance regarding his/her organization. Continuance commitment refers to a situation, where the employees consider leaving the organization as costly.

Committed employees have been argued to possess a strong commitment to the organization's goals and values. They tend to exert considerable effort at work and have a strong desire to keep working in that organization (Mathews and Shepherd, 2002). Research has shown that organizational commitment is positively correlated with job involvement, job satisfaction, and job performance (Allen and Meyer, 1990; Meyer et al., 2002). Particularly, job performance is generally regarded as being positively associated with organizational commitment (Allen and Meyer, 1996). Organizations whose

employees were committed usually achieved higher work performance (Mowday, Steers and Porter, 1982).

Leidner et al. (2010) report that the opportunity of employees to access social networking sites/apps through their smartphones at work was an incentive for the organizational commitment as this opportunity enables employees to be in contact with both work and life milieu. For example, those who use social media such as Facebook, have been argued more likely to experience higher levels of pleasure, which eventually lead higher commitment to work (Valkenburg, Peter and Schouten, 2006; Leidner et al., 2010; Kim and Lee, 2011).

### **Job Satisfaction**

Job satisfaction is described as the employee's positive emotional and behavioral orientation towards a job with respect to his/her consideration regarding the nature of work. It is defined as a positive emotional state of mind emanating from the evaluation of one's job quality or job experiences (Locke, 1976, p. 1297). It refers to a favorable emotional orientation and high moral of employees, regarding their jobs (Schmidt, 2007). Those who are more satisfied with their work have been argued more likely to contribute to organizational goals and help increase organizational performance (Scott and Stephens, 2009). It depends, among other things, on employee's career expectations, position in the company, training and promotion opportunities, wage qualities, organizational culture and life-work balance. Job satisfaction is most likely possible if organization members achieve to balance work, home and leisure successfully (Clark, 2001; Hobsor et al., 2001; Kanwar et al., 2009; Malik et al., 2010). Smartphone use is argued to help achieve this balance through communication and social networking (DiMicco et al., 2008). Users can satisfy their communicative, social, educational, and entertaining needs via their smartphones (Kang and Jung, 2014, p. 377).

Researches revealed that high level of interactions among workers are associated with higher levels of job satisfaction and job performance (Leiter and Maslach, 1988). It is generally expected to have a positive effect particularly on job performance (Judge et al., 2001). A positive relationship between job satisfaction and organizational commitment, has also been reported by a vast number of researches (Mowday et al., 1979; Cook and Wall, 1980; Balfour and Wechsler, 1990, 1991; Meyer, 2009). Some scholars considered job satisfaction as a component of organizational commitment, which could be deemed as the positive orientation of the individual toward the organization in a broader sense (Huang and Hsiao, 2007; Vandenberg and Lance, 1992).

### **Research Methodology**

It will be empirically investigated in this study, a research model to explain how excessive smartphone use at work affects job performance. The hypotheses developed in this paper are depicted in a research model in Figure 1. It will be basically argued that the smartphone addiction is negatively associated with job performance. Several demographic variables such as age, gender, education level, industry type, and the duration of smartphone usage will be included as control variables in the model.

### **Hypotheses**

In this paper the hypotheses will be constructed on the assumption that although there is a negative correlation between smartphone addiction and job performance, the level of

smartphone use intensity, particularly the duration of smartphone usage at work is the basic mediator of this relationship. From this point of view, six hypotheses were developed:

- H1.** Smartphone addiction is positively associated with job satisfaction.
- H2.** Smartphone addiction is positively associated with organizational commitment.
- H3.** Smartphone addiction is negatively associated with job performance.
- H4.** Job satisfaction is positively associated with organizational commitment.
- H5.** Job satisfaction is positively associated with job performance.
- H6.** Organizational commitment is positively associated with job performance.
- H7.** Daily duration of smartphone usage at work is positively associated with smartphone addiction and negatively associated with job performance.

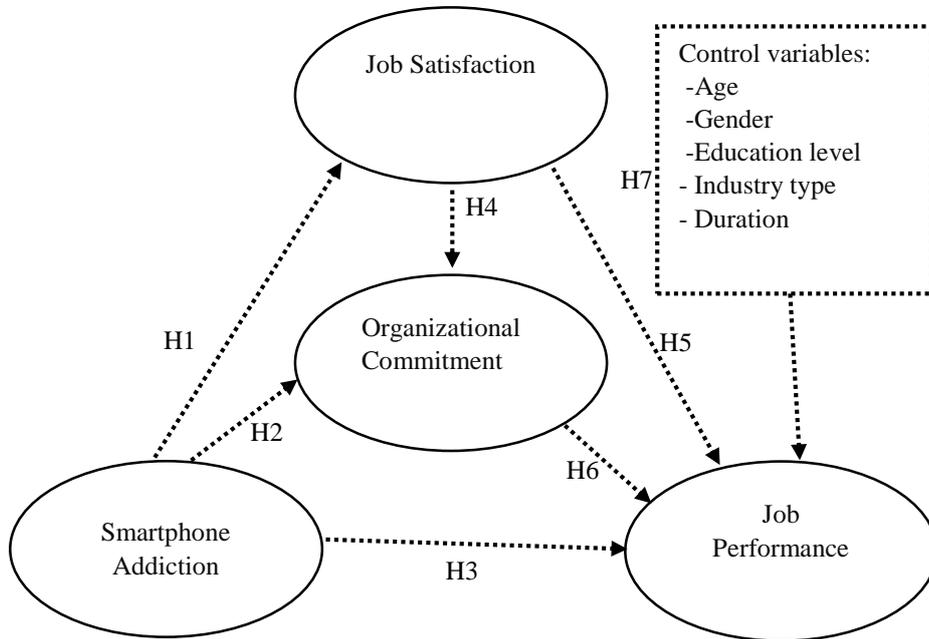


Figure 1. Research Model and Hypotheses

### Measurement

Smartphone addiction was assessed with the short Smartphone Addiction Scale (SAS) (Kwon et al., 2013), which is adapted into Turkish by Demirci et al. (2014), was preferred. The SAS-SV has been reported to possess strong internal consistency (Cronbach's alpha = 0.849). Two Turkish samples yielded a similar reliability value as Cronbach's alpha of 0.88 (Akın et al., 2014; Demirci, et al., 2014). Males who scored 32 or above and females who scored 34 or above are considered to be disposed of a higher risk of smartphone addiction, compared to those who have lower scores than these cutoffs.

In this research, in order to measure participants' organizational commitment, the 6 items measuring affective commitment are used from Affective Commitment Scale

(AC) of Meyer et al. (1993), which was adapted into Turkish by Dağlı et. al. (2018). Job performance scale (JP) of Sigler and Pearson (2000) and Kirkman and Rosen (1999), which was adapted into Turkish by Çöl (2008), is preferred to measure participants' job performance evaluations. As it is clear from the items, this scale is a measurement constructed on the subjective performance evaluation. Therefore, it naturally does not reflect the actual performance of the participants. Job satisfaction scale (JSS) using five indicators were adopted from Rehman (2011). All the indicators were measured on a six-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Smartphone addiction scale was measured using ten indicators, affirmative commitment was measured using six indicators, job performance was measured using four indicators and job satisfaction was measured using five indicators (Table 1).

**Table 1.** Items of Measurement Scales

<b>Constructs</b>	<b>Items</b>	<b>Sources</b>
Job performance (JP)	<i>To what extent do you agree or disagree with the following?</i> (JP1) I complete my tasks on time (JP2) I meet/exceed my goals (JP3) I make sure that services meet/exceed quality standards (JP4) I respond quickly when problems come up	Sigler and Pearson (2000)
Affective Commitment (AC)	(AC1) I feel emotionally attached to this organization (AC2) I would be very happy to spend the rest of my career with this organization (AC3) This organization has a great deal of personal meaning for me (AC4) I feel a strong sense of belonging to my organization (AC5) I really feel as if this organization's problems are my own (AC6) I feel like 'part of the family' at my organization	Meyer et al. (1993)
Job Satisfaction (JS)	(JS1) I am very satisfied with my current job (JS2) My present job gives me internal satisfaction (JS3) My job gives me a sense of fulfilment (JS4) I am very pleased with my current job (JS5) I will recommend this job to a friend if it is advertised/announced	Rehman (2011)
Smartphone Addiction Scale (SAS)	(SAS1) Missing planned work due to smartphone use.	Kwon et al. (2013)

(SAS2) Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use.

(SAS3) Feeling pain in the wrists or at the back of the neck while using a smartphone.

(SAS4) Won't be able to stand not having a smartphone.

(SAS5) Feeling impatient and fretful when I am not holding my phone.

(SAS6) Having my smartphone in my mind even when I am not using it.

(SAS7) I will never give up using my smartphone even when my daily life is already greatly affected by it.

(SAS8) Constantly checking my smartphone so as not to miss conversations between other people on Facebook or Twitter.

(SAS9) Using my smartphone longer than I intended.

(SAS10) The people around me tell me that I use my smartphone too much.

### Sample and data collection

The sample were drawn from two companies, one is IT, the other is a construction company located in the capital city of Turkey, Ankara. The research was conducted between June and July 2019. 600 questionnaires were sent and 486 of them were returned being completed (81 percent response rate). Thus, the sample consisted of 486 responses. The demographic details of the respondents are depicted in Table 2.

Table 2. Respondents' Demographics

Demographics	Items	Count	Percent (%)
Gender	Male (1)	328	67,5
	Female (2)	158	32,5
Age	18-30 (1)	357	73,5
	31-45 (2)	94	19,3
	46-60 (3)	30	6,2
	61 and above (4)	5	1,0
Educational level	Middle school (1)	104	21,4
	High school (2)	221	45,5
	Graduate (3)	152	31,3
	Postgraduate (4)	9	1,9

Industry type	Information Technology	176	36,2
	(1)	310	63,8
Daily duration of smartphone use at work	Construction (2)		
	Up to 1 hour (1)	74	15,2
	1-2 hours (2)	62	12,8
	2-3 hours (3)	129	26,5
	More than 3 hours (4)	221	45,5

### Data Analysis and Results

First, confirmatory factor analysis was conducted in order to assess the reliability of the measurement. Whether Cronbach's alpha and composite reliability (CR) are higher than 0.70 or not were investigated (Fornell and Larcker, 1981). After conducting the analysis, it was revealed that, the Cronbach's alpha and the composite reliability of each construct come out to be higher than 0.70 (Table-3). Therefore, the reliability of the model was reassured. Then, convergent validity of the model was tested by looking out the item loadings and average variance extracted (AVE) values. For evaluating convergent validity, all item loadings should be higher than 0.70 and AVE of the constructs should exceed 0.50. After the analysis, all item loadings were observed to be above 0.70 and the AVE value of the constructs come out to be as higher than 0.50. Hence, the convergent validity of the measurement was also confirmed.

**Table 3.** Values of The Items and Constructs

Construct	Item	Mean	Standard Deviation	Loading	Cronbach's Alpha	CR	AVE
Job performance (JP)	JP1	3,67	1,17	,862	0.79	0.92	0.76
	JP2	4,04	1,19	,887			
	JP3	3,88	1,23	,859			
	JP4	4,02	1,26	,881			
Affective Commitment (AC)	AC1	4,15	1,26	,757	0.86	0.89	0.59
	AC2	4,19	1,31	,780			
	AC3	4,12	1,26	,774			
	AC4	4,16	1,31	,731			
	AC5	4,17	1,26	,797			
	AC6	4,14	1,25	,805			
Job Satisfaction (JS)	JS1	4,05	1,27	,755	0.93	0.86	0.56
	JS2	4,14	1,33	,771			
	JS3	4,09	1,28	,734			

	JS4	4,11	1,27	,779				
	JS5	4,17	1,28	,735				
Smartphone Addiction Scale (SAS)					,771			
	SAS1	4,19	1,37					
	SAS2	4,23	1,33	,813				
	SAS3	4,15	1,37	,767				
	SAS4	4,11	1,28	,720				
	SAS5	4,12	1,35	,705				
	SAS6	4,16	1,33	,709		0.92	0.92	0.55
	SAS7	4,17	1,30	,748				
	SAS8	4,21	1,43	,721				
	SAS9	4,35	1,42	,762				
	SAS10	4,02	1,15	,730				

Then, whether the square root of AVE is bigger than the correlation findings or not was examined in order to find out discriminant validity of the instrument. It was revealed that the square roots of the AVE for each variable are greater than the correlation results, pointing out to a satisfactory discriminant validity (Table-4).

**Table 4.** Correlation Matrix with The Square Root of AVE

Construct	JP	AC	JS	SAS
JP	<b>0.87</b>			
AC	0.14**	<b>0.76</b>		
JS	0.09*	0.18**	<b>0.74</b>	
SAS	-0.42**	-0.52	-0.13	<b>0.74</b>

\*\*Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

It was revealed from the analysis that, smartphone addiction had a negative association with job performance ( $\beta = -0.42, p < 0.01$ ). However, it had no meaningful correlation with both job satisfaction and organizational commitment ( $p > 0.01$ ). With these findings, H3 was verified, but H1 and H2 were rejected. Regarding H4, a significant relationship was observed between job satisfaction and organizational commitment ( $\beta = 0.18, p < 0.01$ ). Therefore, H4 was also confirmed.

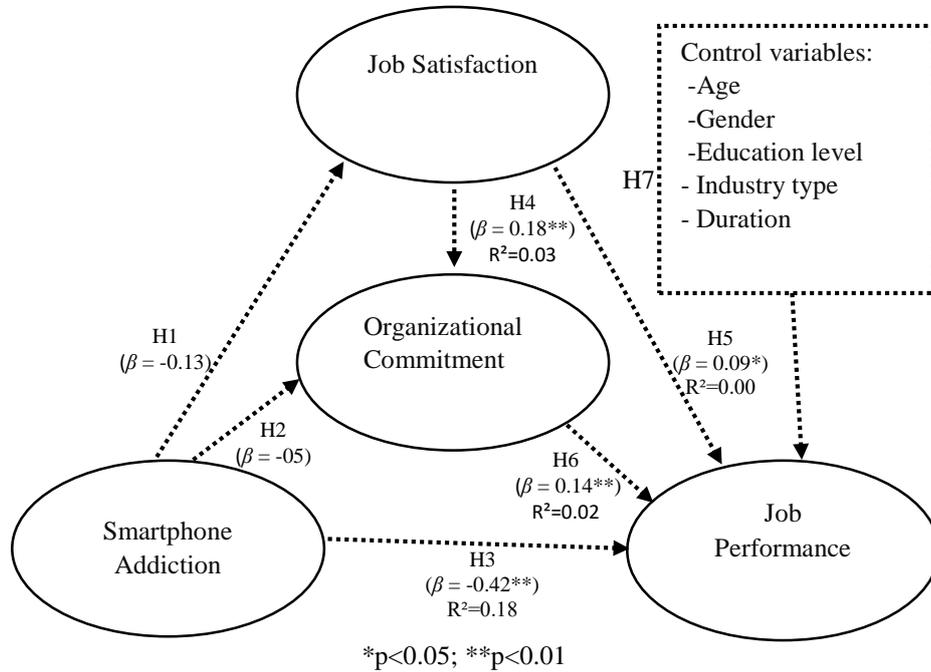


Figure 2. Hypotheses and Results

H5 suggested that a positive association existed between job satisfaction and job performance. Indeed, at the 0.05 level, a meaningful correlation was found between job satisfaction and job performance ( $\beta = 0.09, p < 0.05$ ). A similar but more strong correlation was observed at the 0.01 level between organizational commitment and job performance ( $\beta = 0.14, p < 0.01$ ). These findings suggest that the more satisfied employees are with and committed to their jobs, the higher the level of employees' job performances are. Thus, both H5 and H6 were verified.

Table 5. The Mean Values of SAS Scores According to Smartphone Usage Duration

Duration	Mean	N	Std. Deviation
Up to 1 hour	2,10	62	1,06
1-2 hours	2,80	32	1,12
2-3 hours	4,46	137	1,09
More than 3 hours	4,60	254	1,34

No meaningful difference was observed in terms of the control variables, except daily duration of smartphone usage at work. It was revealed that, a meaningful and a significant correlation existed between smartphone addiction and the daily duration of smartphone usage at work ( $p < 0.001$ ). The average SAS scores of those, who use their smartphones more than 3 hours a day, come out to be as (4,6) pointing up to the situation

that those people are more likely to be smartphone addicted. On the contrary, the mean value of SAS was found to be as low as (2,1) for those who use their phones less than 1 hour a day in the workplace (Table-5). In other words, the more the daily duration of smartphone usage at work increases, the higher the probability of smartphone addiction rises.

**Table 6.** The Mean Values of Job Productivity According to Smartphone Usage Duration

Duration	Mean	N	Std. Deviation
Up to 1 hour	4,21	62	1,06
1-2 hours	4,33	32	1,12
2-3 hours	4,06	137	1,09
More than 3 hours	3,13	254	1,34

A negative correlation, which is significant at the 0.01 level, was detected between job performance and daily duration of smartphone usage at work ( $\beta = -0,484, P < 0.001$ ). The means of job productivity scores have been observed to be decreasing as the daily duration of smartphone usage at work increased. For example, while the mean value of job productivity of those participants having a daily smartphone usage less than 2 hour at work was about (4,33), the mean value of that of those using their smartphones more than three hours come out to be as (3,13)(Table-6). Therefore, H7 was verified since it suggested that daily duration of smartphone usage at work is positively associated with smartphone addiction and negatively associated with job performance.

**Table 7.** Mediating Effects of the Constructs

IV	M	DV	Coefficient in regressions				Mediating
			IV→DV	IV→M	IV+M→DV		
					IV	M	
SAS	Duration	JP	-0.42***	0.70***	-0.17**	-0.34***	Partial
SAS	JS	JP	-0.42***	-0.13	-	0,87	Not
SAS	AC	JP	-0.42***	-0.52	-	0.41*** 0.12***	Not

\*\* p < 0.05, \*\*\*p < 0.01.

IV=independent variable, M=mediator, DV=dependent variable

Daily duration of smartphone use was found to play a partial mediating role between smartphone addiction and job productivity. However, since the link between smartphone addiction and both job satisfaction and affirmative commitment were not significant ( $P > 0.01$ ), job satisfaction and organizational commitment failed to mediate the relationship between smartphone addiction and job productivity (Table-7).

**Table 8.** The Mean Values of Daily Duration of Smartphone Use According to Gender

Gender	Duration	N	Std. Deviation
Male	2,72	328	1,11
Female	3,63	158	,73
Total	3,02	486	1,09

With respect to the duration of smartphone use intensity, meaningful differences were detected in terms of gender and industry type ( $p < 0.01$ ). While the mean value of daily duration smartphone usage at work was about (2,72) for the male participants, it was quite higher than this number as (3,63) for the female respondents (Table-8).

**Table 9.** The Mean Values of Daily Duration of Smartphone Use According to Industry

Industry	Duration	N	Std. Deviation
<b>IT</b>	3,14	176	1,00
<b>Construction</b>	2,95	310	1,13
<b>Total</b>	3,02	486	1,09

The mean value of the daily duration of smartphone usage at work for the participants working in an IT company (3,14) was quite higher than that of those working in a construction company (2,95) (Table-9).

### Discussion and conclusion

Few researches have been conducted studying the effects of smartphone addiction on the work attitudes. However, as mentioned before, smartphones pervade not only personal lives but also work environment deeply. Therefore, this study is an attempt to fill this gap, by focusing on the effects of smartphone addiction on work attitudes, particularly commitment to work, job satisfaction and job performance.

It is argued that technology use could have some harmful effects when a level, which is considered as optimal, is exceeded (Karr-Wisniewski and Lu, 2010). In this regard, “excessive smartphone use at work” refers to a situation, in which an employee spends excessive time and energy using smartphone more than he or she devotes to work requirements. Excessive smartphone use in the workplace is argued to reduce employees’ work performance and lessen productivity (Nucleus, 2009; Shepherd, 2011). For instance, too much engagement with social media via smartphones is argued to cause distraction and confusion in employee concentration, and difficulty in decision making (Mansi and Levy, 2013). A negative relationship was also reported to have been detected between extensive smartphone use and job productivity (Duke and Montag, 2017, p. 93).

In this study, in line with the previous researches, smartphone addiction and daily duration of smartphone usage at work were found to be negatively associated with job performance. The means of job productivity scores have been observed to be decreasing as the daily duration of smartphone usage at work increased. For example, the mean value of job productivity of those participants having a daily smartphone usage up to 1 hour was about (Mean=4,21), while the mean value of that of those using their smartphones more than 3 hours come out to be as (Mean=3,13). Therefore, in this case, more than 3 hours will be regarded as an excessive amount of smartphone use, since this duration of usage observed to be decreasing job performance drastically.

Female participants were observed to have more daily smartphone use at work (Mean=3,63) than their male counterparts (Mean=2,72). Meaningful differences were detected in terms of the industry type with respect to the daily smartphone use. Mean values of daily duration of smartphone use at work of those working in an IT company were significantly higher than that of those working in a construction company.

In line with the literature, positive associations were scrutinized both between job satisfaction and job commitment, and between those variables and job productivity. However, unlike some of the previous studies, which were arguing that smartphone and social media usage at work were incentives for the organizational commitment (Leidner et al., 2010; Kim and Lee, 2011; Valkenburg, Peter and Schouten, 2006), no meaningful relationship was detected between smartphone addiction and both job satisfaction and organizational commitment. In line with these findings, no mediating effects of these variables were detected between smartphone addiction and job performance. It is concluded in this research that although the rational use of smartphones might improve the job performance, as the literature suggests, their excessive usage can induce negative outcomes on the job productivity.

To conclude, this study provides three basic contributions to existing research. First, it improves our practical understanding of the relationship between excessive smartphone use and job performance. Second, it suggests that, in the assessment of excessive smartphone use intensity at work, industry type should be considered as one of the basic control variables. And third finding this paper contributes the literature is that there exist significant gender differences in terms of duration of smartphone use at work. Therefore, measures to be developed in order to discipline smartphone usage at work to lead this irresistible addiction to a point, where it would not harm the organizational productivity, should necessarily pay attention to these differences.

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