Social Networks Users: Fear of Missing Out in Preservice Teachers

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Abstract
As mobile computing and smartphones become an integrated part of our lives, the time individuals spend on social networks has significantly increased. Moreover, a link has been established between the uncontrolled use of social networks to the development of undesirable habits and behaviors including addictions. One such behavior, namely, fear of missing out (FOMO) is of particular interest and concern especially because of the widespread use of smartphones and computers, and thereby extensive use of social networks by the younger generation. This study establishes the relationships between FOMO and various social networks in an attempt to identify the problematic use of social media in Turkey and discover variables relevant to FOMO. The main objective of the study is to examine the prevalence of FOMO in preservice teachers. A total number of 363 preservice teachers on various academic courses were employed for the purpose of this study. The design was a survey which utilized a standardized questionnaire on FOMO together with a demographic questionnaire to explore the impact of the usage of smartphones and social networks by preservice teachers. The data were analyzed using descriptive statistics, independent samples t-tests, and analysis of variance (ANOVA). The overall findings of the study showed that the spread of FOMO amongst preservice teachers is at intermediate level. Significant differences were also found between groups based on gender, age, and usage of social networks. Furthermore, data from males were indicative of higher FOMO levels than female preservice teaches and again, under 21s were found to have higher levels of FOMO compared to the other age groups. A significant relationship was reported between being online on social networks throughout the day and active use of social media over seven hours, and FOMO. Furthermore, preservice teachers using Twitter, Instagram, Swarm, or Snapchat have increased levels of FOMO. Implications are discussed within current models.
Keywords: FOMO, social networks, smartphones, university students.

1.   Introduction

Social Network Services (SNSs) are described as virtual communities where individuals communicate and share information (Cheung, Chiu and Lee, 2011; Lin and Lu, 2011). Social networking website is a kind of virtual communities that allows people to connect and interact with each other (Murray & Waller, 2007).

As technologies advance rapidly, SNSs have become an essential technological tool for human life (Yin, Liu and Lin, 2015). In light of these developments, the use of the internet and SNSs is increasing in Turkey, as is the case for the wider world. The "Internet and Social Media Users Statistics" published by We Are Social in 2016 reports that out of a population of 79,14 million, 46,3 million have internet access, and 42 million of these users actively take part in social media. 77% of these users go online on a daily basis and 36 million access social media through mobile devices. The same report shows the percentage of users in Turkey for different SNSs as follows: Facebook has the largest number of users with 32%, followed by WhatsApp with 24%, Facebook Messenger with 20%, Twitter with 17%, and Instagram with 16% (We Are Social, 2016). Currently, individuals -and especially the younger generation- keep connected via Twitter streams, advertise their locations through Swarm, share photos on Instagram, and post Facebook updates (Grohol, 2013). Organizing various activities, communicating, and making plans are all made speedier using SNSs. The falling prices of mobile internet and the popularity of smartphones amongst them has resulted in more time spent on SNSs through smartphones. There are reports on the exaggerated and problematic use of SNSs by young generations (Bányai, et al., 2017; Vanden Abeele, & van Rooij, 2016; van den Eijnden, Lemmens & Valkenburg, 2016).

Singh, Gupta, and Garg (2013) state that these developments may impact the users' behaviors and personalities. In their study, Hooper and Zhou (2011) classify user behavior in six categories: addictive, compulsive, habitual, dependent, mandatory, and voluntary behavior. It is believed that these changes in behavior cause the exaggerated and problematic use of SNSs amongst young people. It is reported that struggling through these behavioral changes, young people with no life satisfaction frequently check the profiles of groups, friends and family they are connected with (Hato, 2013). Oulasvirta et al (2012) states that smartphones' ability

to send notifications brings the habit of frequently checking phones and hence result in excessive and problematic usage. It is also reported that sleeping with phones, waking up to follow up notifications and check new messages as the first thing in the morning are behaviors linked to problematic use of smartphones (Akıllı & Gezgin, 2016; Hato, 2013).

It is argued that frequently checking smartphones is linked to the development of Fear of Missing Out, or FOMO, whereby individuals have a tendency to continuously follow other individuals, groups and news they are curious about to see whether they have shared anything new (Hato, 2013; Gokler et al, 2016; Przybylski et al., 2013). This leads to extreme behaviors with individuals not wanting to miss out on anything regarding the people and/or groups they are connected with and as a result frequently checking their smartphones (Fox & Moreland, 2015; Dossey, 2014; Hato, 2013). The impact of FOMO and the overuse of technology such as social media and smartphones is reported in published works (Alt, 2015; Przybylski et al., 2013; Clayton, Leshner, & Almond, 2015). Kandell (1998) links internet addiction -which manifests itself as lengthy engagement on the internet- to the fear of missing out on something. According to this, FOMO relates to missing perceived important information and rewards, including social information. This drives the urge to stay persistently connected and follow activities of others involved in their social network. In brief, FOMO "is the fear that others have things that you don't, or are experiencing things that you wish you were" (JWT Intelligence, 2011). This situation results in staying connected to what others are doing (Przybylski et al., 2013). Considering most university students study in different countries, cities and locations, there is nevertheless a tendency to stay connected to their friends by way of photos, posts, and friends' lists, and their activities remotely. The technological tools offered (e.g. social media tools, smartphones, and tablets) enable real time sharing at a scale never seen before, perpetuating the experience of FOMO. The same tools provide opportunities to constantly check on social media activities. As these technological tools enable more frequent social engagement in a convenient way, at the same time they reinforce an increased reliance on mediated communication. Based on all these, it is believed that the reason behind the urge to follow the people connected is linked to FOMO; an addiction. It is important to note that even as early as 1996 concerns were raised regarding the pathological use of the internet especially in the development of addictions (Griffiths, 1996). In this respect, most recent research shows that problematic smartphone use is indeed related to anxiety, a need for touch, and FOMO (Elhai et al, 2016).

It can easily be seen that the increase in use of SNSs increased interaction amongst young people, leading to intensively checking on others' online status, and updating their own status frequently (Fox, Moreland, 2015; Hato, 2013; Yin, Liu and Lin, 2015). In their study, Przybylski et al. (2013) emphasize that FOMO plays a critical role in the increased use of SNSs. FOMO is believed to fuel the importance of awareness of most up-to-date news, social happenings and social events. This necessitates anytime-anyplace connectivity. A potential lack of such connectivity and its implications on staying connected with social media, "is believed to lead to feelings of anxiety and fear in individuals using social networks" (Rosen et al., 2013; Przybylski et al., 2013). FOMO reduces young peoples' life satisfaction (Cohen, 2013; Dossey, 2014; Przybylski et al., 2013). All these caused by FOMO impact on important factors such as academic success, proper sleep, and academic motivation especially in young peoples' lives (Alt, 2015). Besides this, Przybylski et al. (2013) report that the level of FOMO is high amongst students using SNSs in their studies. In support of this, the study by Alt (2015) reveals that university students use SNSs for unrelated activities during classes. This is likely to impact on students' concentration and as a result, academic success. In their study, Przybylski et al (2013) state that individuals with a high level of FOMO have a problematic relationship with SNSs. These individuals check messages while driving, they use Facebook first thing in the morning, and they keep exhibiting such behavior intensively during classes and before going to sleep. The traditional mail systems are slow, taking days even a couple of weeks for inter-continental communication. The use of social media like Facebook reduces this time lag to seconds. Considering that 73% of adult online users are on some social networking site, and 84% of adults aged 18–29 years use Facebook (Duggan & Smith, 2013), it is evident that this platform has become one of the primary sources of communication today especially for millennials. It is no surprise that 63% of millennials use Facebook on a daily basis, and mobile devices are used by 71% of people to access social media (Pun, 2013). People are more connected now than ever. Steggink (2015) also states that Facebook users have the fear of missing out on something or someone, and to avoid this, they are eager to further use Facebook. Vanden Abeele and van Rooij (2016) argue that FOMO has a significant impact on the problematic use of social media, and that FOMO is important in explaining the problematic use of social media. The study shows FOMO as one of the predictors of problematic uses of SNSs.

Although research on FOMO is in its infancy in Turkey, Gokler et al (2016) adapted the FOMO scale to Turkish and have shown that university students who have a number of social network accounts and checking tools, access the internet more frequently in order to follow what is going on Twitter and Facebook and suffer more from FOMO. Considering the fact that youngsters, especially the millennium generation (born in 2000s), focus on social interactions and show loyalty through mobile phones, short messages, chat rooms, and e-mail to

their friends, family, and colleagues while playing games on a computer, listening to music, watching TV (McMahon & Pospisil, 2005), the importance of investigating the level of FOMO on preservice teachers making up the sample group becomes more imperative. The behavior of problematic use of and the overuse of SNSs (the length of time having had a social network account, being online during daytime, total time accessing SNSs through the use of a smartphone) are considered to be related to FOMO. In this context, considering that SNSs are widely used especially by the younger generation, it becomes important to investigate the level of FOMO of different groups in order to take precautions against situations having a negative impact on teaching and learning processes at schools, preparing teaching and learning environments, and supporting students academically, socially, emotionally, and psychologically. Finally, considering that there isn't sufficient research on FOMO in Turkey increases the significance of this work. There is only one study (Gokler et al, 2016) that has yielded further investigation concerning the indicators of FOMO and what relationships can be revealed between FOMO and SNS usage. Considering the increase in the use of smartphones and SNSs, this work may raise awareness in understanding the level of FOMO in preservice teachers, and in case these levels are high, it may provide the platform for taking precautions in reducing the levels of FOMO. The main aim of this study is to investigate the relationship between the behavioral patterns of the use of SNSs and FOMO. In doing so, answers to the following questions are sought:

1. What is the level of FOMO amongst preservice teachers?
2. Are there significant differences between the levels of FOMO according to the following variables?
a.   gender,
b.   age,
c.   the duration of smartphone ownership,
d.   the duration of having a SNS account,
e.   the number of SNS accounts,
f.   the case of actively using an SNS on a smartphone throughout the day,
g.   the case of being online on a smartphone throughout the day,
h.   the duration of daily SNSs used on a smartphone,
i.   the type of SNS accounts used

2.   Methodology

2.1.   Design

The study employed a survey design using an opportunity sample of participants. This study is designed around a survey design model; an approach aimed at describing a situation the way it exists. The aim of a survey design research is to discover the current state of the research subject (Buyukozturk et al, 2015). In research designed by a survey design model, the distribution of the participants is more important than the causes of opinions and characteristics (Fraenkel and Wallen, 2006). The data was subjected to descriptive and inferential statistical analyses as described above.

2.2.   The Sample Group

The sample group is formed of 348 preservice teachers studying seven different specializations in Education (Computers and Instructional Technologies, Mathematics, Primary School, Pre-School, German, English, and Turkish Teacher Training programs) at the Faculty of Education, Trakya University, Turkey in the 2015-2016 Spring term, having membership of at least one social network, and possessing a smartphone. The demographic characteristics of the preservice teachers concerned are given in Table 1.

Table 1. The Demographics of the Preservice Teachers Concerned

Gender	N	%
Female	233	67.0
Male	115	33.0
Age		
Under 21	198	56.9
21-24 Years Old	91	26.10
Over 24	59	17.0
Department		
Computers and Instructional Technologies Teacher Training	89	25.6
Mathematics Teacher Training	55	15.8
Primary School Teacher Training	16	4.6
Pre-School Teacher Training	24	6.9
German Teacher Training	54	15.5
English Teacher Training	64	18.4
Turkish Teacher Training	46	13.2
Duration of Smartphone Ownership		
Under a year	25	7.2
1-3 years	116	33.3
3-5 years	110	31.6
5-7 years	67	19.3
Over 7 years	30	8.6
Duration of having a SNS account		
1-3 years	53	15.2
3-5 years	88	25.3
5-7 years	124	35.6
Over 7 years	83	23.9
Number of SNS accounts		
1-2	98	28,2
3-4	145	41,7
5-6	81	23,3
7 or more	24	6,9
Active use of SNS on smartphone throughout the day		
Yes	305	87.6
No	43	12.4
Being online on smartphone throughout the day		
Yes	167	48.0
No	181	52.0
Duration of daily SNS use on smartphone		
Under an hour	40	11.5
1-3 hours	127	36.5
3-5 hours	107	30.7
5-7 hours	48	13.8
Over 7 hours	26	7.5
Total	348	100

2.3.   Data Collection Tools

The tool developed by Przybylski, Murayama, DeHaan and Gladwell (2013) and adapted to Turkish by Gokler et al (2016), FoMo Scale (FoMos) has been used in collecting data. A 5-point Likert scaling was used in one dimension with 10 items in total. Each item is given a score 1-5 according to participants' choices (1=not true at all, 5=definitely true). The individuals score between 10-50 and there is no cut-off point in the scale. The higher a score is, the more likely the individual concerned has FOMO. The reliability coefficient using Cronbach's Alpha is 0.95 for the original and 0.81 for the Turkish version of the scale. In this study, Cronbach's Alpha is 0.86.

The demographic information collected using the scale includes gender, age, department, the duration of smartphone ownership, the duration of having a SNS account, number of SNS accounts, actively using SNSs on a smartphone, being online on smartphones throughout the day, duration of daily SNS use on a smartphone

and type of SNS account owned.

2.4.   Collection of Data and Analyses

The data was collected during class hours in a classroom through the use of the scale. First the students were informed about the research topic and the data collection tool, and then reminded that participation is voluntary before they answered the questions. It took about 10 minutes to answer the questions of the scale. The normality of data collected was tested before starting any analysis. The Kolmogorov-Smirnov Test used did not show a Normal Distribution ($p<0.05$). However, when the skewness and kurtosis total scores for individuals were calculated, the values obtained were between +1 and -1. As known, skewness and kurtosis values are zero under standard normal distribution. Having values ranging between +1 and -1 indicates that distribution does not deviate extremely from normal distribution (Mertler & Vannatta, 2005). Based on these findings, it is accepted that the data follows a near normal distribution and hence parametric tests were used. In accordance with this, analyses were performed using descriptive statistics, T-test for independent variables, one-way ANOVA.

3.   Findings

In the study, first of all the level of FOMO of preservice teachers is investigated. The findings showed that the level of FOMO in Preservice teachers is close to average level (M=2.46). The distribution of social media accounts amongst the sample group has been found to be as follows: Facebook 71.6%, Twitter 32.8%, Instagram 76.7%, WhatsApp 76.7%, LinkedIn 2.6%, Snapchat 39.1%, Swarm 19.8%, YouTube 29.9%, Periscope 4.6%, Pinterest 7.5%, Tumblr 1.7%.

As shown in Table 2, according to responses to the FOMO Scale, five items (highlighted in bold) scored higher than average. It can clearly be seen that in preservice teachers' level of FOMO these items are effective.

Table 2. Fear of Missing Out Scale

items	Mean	SD
1) I fear others have more rewarding experiences than me.	1.76	1.04
2) I fear my friends have more rewarding experiences than me.	1.75	1.03
3) I get worried when I find out my friends are having fun without me.	1.98	1.22
4) I get anxious when I don't know what my friends are up to.	1.99	1.14
5) It is important that I understand my friends' "in jokes."	**3.04**	**1.39**
6) Sometimes, I wonder if I spend too much time keeping up with what is going on.	**2.76**	**1.29**
7) It bothers me when I miss an opportunity to meet up with friends.	**2.80**	**1.39**
8) When I have a good time it is important for me to share the details online (e.g. updating status).	2.28	1.30
9) When I miss out on a planned get-together it bothers me.	**3.50**	**1.36**
10) When I go on vacation, I continue to keep tabs on what my friends are doing.	**2.75**	**1.34**

3.1.   Gender

Independent samples t-test has been used to establish whether gender differences in the level of FOMO reach statistical significance in preservice teachers. According to the findings of this test, there is a statistically significant difference [t (346) =2.67, p<.05] on the levels of FOMO between female (M=2.38, SD=.80) and male (M=2.63, SD=.90) students. As can be seen in Table 3, the level of FOMO has been found to be higher in male preservice teachers.

Table 3. T-test results according to gender

	N	M	Sd	df	t	p
Female	233	2.38	.80	346	2.67	.01*
Male	115	2.63	.90			

*p<.05

3.2.   Age

One-way ANOVA has been used to examine whether there are differences between the levels of FOMO in preservice teachers according to age groups. The results summarized in Table 4 show that there are statistically significant differences on FOMO levels according to age groups [F (2,345) =4.394, p=.01]. Post-hoc tests were conducted to establish the source of the differences using Tukey's test. Results show that difference is only

between under 21 (M=2.57, SD=.82) and over 24 (M=2.46, SD=.84) age groups in favor of under 21s. The findings indicate that the level of FOMO is higher for the younger preservice teachers who are likely to be in their initial years of training.

Table 4. One-way variance analysis according to age groups

Source of Variance	Sum of squares	df	Average of squares	F	p	Difference
Inter-groups	6.102	2	3.051	4.394	.01*	A-C
Intra-groups	239.562	345	.694			
Total	245.664	347				

*p < .05 (A: Under 21; B: 21-24 years old; C: Over 24)

3.3. Duration of smartphone ownership

One-way ANOVA has been used to find out if the length of time preservice teachers owned a smartphone makes any difference in the level of FOMO they suffer from. The analysis presented in Table 5 revealed that there is no significant difference between the duration of smartphone ownership and the level of FOMO of an individual. [F (3,344) =.326, p=.86]. Hence, the duration of smartphone ownership has no effect on the level of FOMO of preservice teachers.

Table 5. Result of one-way variance analysis based on the length of ownership of a smartphone

Source of Variance	Sum of squares	df	Average of squares	F	p
Inter-groups	.929	3	.232	.326	.86
Intra-groups	244.734	344	.714		
Total	245.664	347			

3.4. Duration of having a SNS account

One-way ANOVA has been carried out to find out if the duration of time preservice teachers had a SNS account makes any difference in the level of FOMO they suffer from. The findings given in Table 6 indicate that there is no significant difference [F (3,344) =2.627, p=.05]. It can be concluded that the duration of having a SNS account has no effect on the level of FOMO.

Table 6. Results of one-way variance analysis based on the length of time an SNS account is owned

Source of Variance	Sum of squares	df	Average of squares	F	p
Inter-groups	5.502	3	1.834	2.627	.05
Intra-groups	240.161	344	.698		
Total	245.664	347			

3.5. The Number of SNS accounts

The data was subjected to formal analyses using one-way ANOVA to find out whether there are differences between the levels of FOMO in preservice teachers according to the number of SNS accounts an individual has. Analyses show a statistically significant difference [F (3,344) =7.781, p=.00] between the number of SNS accounts held (Table 7). Further post-hoc tests using Tukey's test was used and differences between the groups having 1-2 accounts (M=2.25; SD=.84), 5-6 accounts (M=2.63; SD=.79), and 7 or more accounts (M=3.06; SD=.70) in favor of the latter two were found. In addition, differences have been found between groups having 7 and more accounts, (M=3.06; SD=.70), and 3-4 (M=2.42; SD=.84) and 5-6 (M=2.63; SD=.79) accounts in favor of those having 7 or more accounts. It can be concluded that the preservice teachers with more SNS accounts and especially those having 7 or more accounts have high levels of FOMO.

Table 7. Results of one-way variance analysis based on the number of SNS accounts owned

Source of Variance	Sum of squares	df	Average of squares	F	p	Difference
Inter-groups	15.610	3	5.203	7.781	.00*	A-C, A-D
Intra-groups	230.054	344	.669			D-A,D-B,D-C
Total	245.664	347				

*p < .05 (A: 1-2; B: 3-4; C: 5-6; D: 7 and above)

3.6. The active use of SNSs on a smartphone throughout the day

Independent samples t-test has been carried out in order to find out differences between using smartphones to get actively involved with a SNS, and not using smartphones for this purpose on the level of FOMO of preservice teachers. According to the findings of the test, there is a significant difference in the level of FOMO between students using smartphones to actively engage with SNSs (M=2.54, SD=.82) and those not using smartphones for such engagement (M=1.95, SD=.79) in favor of those using smartphones [t(346) =4.36, p<.05]. Findings reveal that those actively engaging with SNSs have higher levels of FOMO compared to those not using smartphones to access SNS accounts. Results are shown in Table 8.

Table 8. Results of t-test analysis based on the active use of SNSs through smartphones

	N	M	Sd	df	t	p
No	43	1.95	.792	346	4.36	.00*
Yes	305	2.54	.824			

*p<.05

3.7. Being online on smartphone throughout the day

Independent-samples t-test has been carried out in order to find out differences between being online using smartphones on Preservice teachers' level of FOMO. According to the findings, there is difference on the level of FOMO between students who are online through a smartphone (M=2.78, SD=.834) and those who are not (M=2.17, SD=.738) in favor of the former [t(346)=7.23, p<.05]. It can be seen in Table 9 that the former group have a higher level of FOMO.

Table 9. Results of t-test analysis based on being online through smartphones

	N	M	Sd	df	t	p
No	181	2.17	.738	346	7.23	.00*
Yes	167	2.78	.834			

*p<.05

3.8. Duration of daily SNS use on a smartphone

One-way ANOVA has been carried out to explore any difference that may exist on the levels of FOMO of preservice teachers based on the duration of daily SNSs used per day and results are shown in Table 10. Results show that there is a reliable difference between the duration of smartphones used in a day and level of FOMO [F (4,343) =8.232, p=.00]. To identify which groups differ in this, Tukey's post-hoc test has been used. Results show that there are differences between the groups using SNSs 5-7 hours a day (M=2.91, SD=.79), less than an hour a day (M=2.02, SD=.81), 1-3 hours a day (M=2.36, SD=.77), and 3-5 hours a day (M=2.47, SD=.80) in favor of those belonging to the 5-7 hours group. Furthermore, differences have been found between groups using SNSs under an hour (M=2.02, SD=.81), 3-5 hours (M=2.47, SD=.80), 5-7 hours (M=2.91, SD=.79) and more than 7 hours (M=2.77, SD=1.04) in favor of those using SNSs longer in a day. In general, the findings reveal that preservice teachers using SNSs more in a day and especially those belonging to the 5-7 hours group have high levels of FOMO.

Table 10. Results of one-way variance analysis based on daily use of SNSs through smartphones

Source of Variance	Sum of squares	df	Average of squares	F	p	Difference
Inter-groups	21.518	4	5.379	8.232	.00*	A-C, A-D, A-E
Intra-groups	224.146	343	.653			D-A, D-B, D-C
Total	245.664	347				

*p < .05 (A: Under an hour; B: 1-3 hours; C: 3-5 hours; D: 5-7 hours; E: over 7 hours)

3.9. Type of SNS account owned

Independent samples t-test has been carried out in order to establish whether the type of SNS account owned shows differences in the level of FOMO in preservice teachers. According to the findings, there are differences in FOMO levels for those students using Twitter, Snapchat, Instagram, and Swarm. There is a difference between Twitter users (M=2.70, SD=.822) and non-users (M=2.35, SD=.829) in favor of those using Twitter [t (346) =3.679, p<.05]. Again, there is difference between Snapchat users (M=2.73, SD=.831) and non-users (M=2.30, SD=.806) in favor of those using Snapchat [t (346) =4.797, p<.05]. The findings are similar between Instagram users (M=2.53, SD=.855) and non-users (M=2.24, SD=.757) showing a difference in favor of users [t (346) =3.718, p<.05]. Finally, there is a difference between Swarm users (M=2.80, SD=.761) and non-users (M=2.38, SD=.841) again, in favor of users [t (346) =3.760, p<.05]. Findings indicate that the SNS applications linked to FOMO are Twitter, Snapchat, Instagram, and Swarm. It can be concluded that SNS users have a high level of FOMO (Table 11).

Table 11. T-test results based on the type of SNS accounts participants have

Type of SNS Account	Account Ownership	N	M	Sd	Df	t	p
Facebook	No	99	2.39	.846	346	.991	.32
	Yes	249	2.49	.840			
Twitter	No	234	2.35	.829	346	3.679	.00*
	Yes	114	2.70	.822			
WhatsApp	No	81	2.43	.869	346	.402	.69
	Yes	267	2.47	.834			
Snapchat	No	212	2.30	.806	346	4.797	.00*
	Yes	136	2.73	.831			
Instagram	No	81	2.24	.757	346	2.718	.01*
	Yes	267	2.53	.855			
Pinterest	No	322	2.47	.851	346	.232	.82
	Yes	26	2.43	.721			
Periscope	No	332	2.45	.838	346	1.211	.23
	Yes	16	2.71	.892			
Swarm	No	279	2.38	.841	346	3.760	.00*
	Yes	69	2.80	.761			
LinkedIn	No	339	2.46	.844	346	.211	.83
	Yes	9	2.52	.787			
YouTube	No	244	2.43	.862	346	1.053	.29
	Yes	104	2.54	.790			
Tumblr	No	346	2.46	.847	346	.351	.73
	Yes	6	2.58	.492			

*p<.05

4.   Discussion

The aim of the present study was to examine the prevalence of FOMO in preservice teachers based on their FOMO scores and on demographic information. The evaluation of the findings and their implications are discussed below together with the limitations.

4.1.   Gender

The FOMO scores calculated from the data collected for this study clearly show that male students have higher levels of FOMO than female students. In their study, Przybylski et al. (2013) report that that amongst young people, males are more likely to have higher levels of FOMO, however, for older generations, gender does not seem to make any difference; this is supportive of the findings of this study. JWT Intelligence (2011), is the world's best-known marketing communications brand. They surveyed 1,024 adults aged 18-plus, and 87 teenagers. They report that "men (especially American men) are more prone to feelings of missing out via social media". 45% of participants responded saying that "they feel somewhat or very left out when they see via social media that their peers are doing something they're not, compared with 29% of women." They conclude that the

"FOMO skew is most pronounced in the U.S., where more men than women relate to FOMO: 51% vs. 40%" (JWT Intelligence, 2011). In Turkey, in their work adapting the FOMO Scale to Turkish, Gokler et al. (2016) report that they found no difference between gender groups. However, in the literature reporting on FOMO research, although the volume of published work is limited, differences based on gender are reported. This was not expected, because females use social media mainly to communicate with peers. On the other hand, it is reported that males use social media to meet new people and make new friends (Barker 2009; Lenhart and Madden, 2007 cited in Herring and Kapidzic, 2015). The findings reported in the literature point at the relationship between the use of smartphones and SNSs on FOMO.

4.2.   Age

Results of the present study show that under 21s have higher levels of FOMO compared to over 24s. (Przybylski et al., 2013) point at the negative relationship between FOMO and age; this is again supportive of the findings of this study. According to their study, level of FOMO is reduced as age increases. The study carried out by JWT Intelligence (2011) shows that individuals between 13 and 33 years old have the highest risk of developing FOMO. This is reflected in the responses of more than half of the participants saying that they could not stand the idea of missing out. Responses from 65% show that becoming aware (by means of their social media use) that their friends were doing something without them makes them feel left-out. The reason behind the higher levels of FOMO in under 21s may be that they are relatively new in higher education and are away from family. This may lead them to frequently checking the videos, photos, news, and messages posted by their pre-university friends and family. Considering that every department at university now use social networks such as Facebook, Twitter etc. for each year group, it may be that new students are keener in following what is shared, to access notifications and information on class and university activities and exams, read the news, share material, etc.

4.3.   Duration of smartphone ownership

When the difference the variable of duration of smartphone ownership makes on FOMO is investigated, no significant difference is found in this study. According to this, "FOMO was not related to the continuum of smartphone use" as confirmed by (Elhai, et al. 2016). This shows that the presence of applications on a smartphone that enable access to social media is more important than how long an individual had access to such facility. After all, investing into a smartphone may well show the interest in better access to social media and this fuels FOMO regardless of being a new owner of a smartphone or having a longer usage of it. It may be more interesting looking at how daily smartphone usage impacts on FOMO.

4.4.   Duration of having a SNS account

Again, the study shows no significant difference between the length of time an individual has had a SNS account and level of FOMO. It must be noted that the value for statistical significance (p) is taken as 0.05. It is possible that sample groups of different sizes may indicate significant differences. Following from the findings of this study, it can be stated that length of time having a SNS account does not affect FOMO for preservice teachers. Investigating the differences between length of time an individual uses social media in a day and FOMO may be more interesting than the length of time they had a social media account. An individual may have opened an account a while ago but failed to use it actively for a while.

4.5.   The Number of SNS accounts

The findings of the study show that the number of social media accounts changes the level of FOMO. Preservice teachers with more SNS accounts, especially those having 7 or more accounts have higher level of FOMO compared to those with a fewer number of accounts. These findings agree with the only published research work on FOMO research we can find in Turkey (Gokler et al, 2016).

4.6.   The active use of SNSs on smartphone throughout the day

According to the results obtained, the level of usage of social media through smartphones makes a difference on the level of FOMO. Those using social media through smartphones have higher levels of FOMO compared to those not doing so. These findings agree with relatively high levels of FOMO amongst preservice teachers this study found. The sample group; preservice teachers are young people and all participants possess a smartphone. This leads to the active use of social media through smartphones, especially for communication and sharing (education, photos, videos, status on the wall etc.) This leads to the active use of social media through smartphones throughout the day. Noting that FOMO increases active use of social networks to the extent of making it a problem, the active users of SNSs are affected by FOMO more.

4.7.   Being online on smartphone throughout the day

It has been shown that there is a significant difference on the level of FOMO based on being online through

smartphones. The findings of the study show that those being online through smartphones have higher levels of FOMO compared to others. This finding is expected; other studies show that people with high levels of FOMO frequently control their phones (Hato, 2013, Przybylski et al., 2013, Oulasvirta et al., 2012). Hence, individuals being online throughout the day follow updates from people they are connected with as well as news. It is believed that being online through smartphones is associated with FOMO, especially for younger people. This is caused by the desire to follow all shared by their connections and the news. Considering the levels of FOMO in case of preservice teachers, this may be linked to the capabilities of smartphones and the applications installed on them; e.g. the ability to send notifications encourages them to be online all the time. This is another variable that can be exploited in future research. Considering the levels of FOMO in preservice teachers, it is recommended that notifications are disabled on SNS applications.

4.8.   Duration of daily SNSs' use on a smartphone
The findings of the study show that the level of FOMO for preservice teachers shows differences according to the length of time of daily SNS access through smartphones. In a general summary, the FOMO levels of preservice teachers are higher for those spending more time on SNSs, especially those spending 5-7 hours daily on average. The cause of spending long hours on SNSs is the desire to follow what the people connected share, the news and so on. The descriptive statistics part of this work clearly shows that the main aims of preservice teachers' use of smartphones and the mobile internet is to access social networks and follow the news. In future work, experimental and qualitative studies can be used to better understand the reasons behind spending long hours on social media focusing on preservice teachers with a high level of FOMO.

4.9.   Type of SNS account owned
The findings of the study show that there are differences between the use of an account on Twitter, Snapchat, Instagram, or Swarm and level of FOMO. It seems to be more likely for people with increased FOMO to post on social media about one-time sporting and entertainment events. This implies positive correlation between tendencies to use social media and elevated levels of FOMO (Cheever et al., 2014; Fox & Moreland, 2015). Students with a high score on FOMO, were more likely to experience mixed feelings while using social media and to use Facebook during lectures (Przybylski et al., 2013). Social media platforms including Twitter are designed with broader audiences in mind, allowing sharing and interacting with strangers sharing a common interest; Snapchat is designed around enabling communications reflecting full range of human emotions; Instagram is for sharing photos or videos, and following what friends share to find out what they are up to; and finally Swarm provides the opportunity to check in location informing friends where they are, discover where their friends are, and meet or date with new friends. These characteristics of SNSs seem to lead to higher levels of FOMO. Although Facebook is designed to share content almost exclusively with friends and allow to see what others doing, no significant difference can be seen regarding FOMO. Contradictory to this result Steggink (2015) shows that Facebook users have a fear of missing something or someone and hence becoming more eager in further use of Facebook to avoid this.

Considering that individuals have high levels of FOMO in social environments, this can be seen as a risk for preservice teachers that can have a negative impact on teaching and learning processes. Taking the rate of use of developing technologies (smartphones, social networks etc.) by preservice teachers and their addictions of these systems, it can be said that they may face problems in focusing on class activities, inability to manage teaching and learning processes, and lack of ability to have effective communication with their students. This study is important in raising awareness in preservice teachers by highlighting the likely symptoms of FOMO, and emphasizing possible problems investigating them in relation to various variables.

5.   Conclusions
This study sheds light on important factors that increase FOMO, and suggests solutions to get rid of and/or decrease these psychological symptoms and situations. Considering individuals especially born after 2000, called the millennial generation, and those who would be a future teacher, this study may have an important issue on limiting factors that impact on FOMO or avoiding being a victim of FOMO. To avoid FOMO, it would be recommended to spend more time on real social activities such as jogging, swimming, trekking, or other sports activities (e.g. tennis, football, basketball), or playing a musical instrument, and having more discussions on current affairs with colleagues, friends, family etc. These kinds of social activities may reduce the impact of the psychological indicators of FOMO especially among the digital native generation.

Furthermore, the present study makes recommendations to parents and teachers of digital natives to avoid possible FOMO. It is kindly recommended to the parents to spend more time with their children and not to let them to fill their psychological loneliness by using digital devices or social networks. Considering the digital terms' diseases, it is more important to engage with children and take care of them more than ever. Families should be made aware of the consequences of FOMO, such as sleeping disorders in children and young persons,

lack of academic motivation, and passivism in classes. They should also have awareness of FOMO's consequences such as problematic use of the internet and smartphones. Teachers can integrate digital devices into education to enhance teaching and learning. The integration of trendy technologies into education is more than just using them. It is important to note that when a technology is integrated into a classroom environment, it is possible to increase the students' motivation, better engage them with coursework, and reach expected outcomes without having unwanted situations such as distraction from other digital environments. Teachers especially have to be more careful in the use of smartphones in classrooms. The level of FOMO students suffer from leads to the use of smartphones for activities having no relevance to class activities, reduced concentration in classroom, difficulties in focusing on in-class activities, and negative impact on academic success. Hence it is important to limit the use of smartphones in classrooms in order to increase students' concentration and motivation. Some universities are already restricting the use of smartphones in classrooms (Hingorani, Woodard, & Askari-Danesh, 2012). Furthermore, there are studies criticizing the new approach of using smartphones in mobile learning practices (Spitzer, M. 2015). Hence, it is important that in case of using tools in mobile learning, teachers should pay attention to the tools used and the applications they may have (e.g. Facebook, Twitter, Snapchat). Besides this, it is recommended that some characteristics of smartphones, such as vibration, notifications, alarm etc. are disabled during class hours. Thus, the climate of the classroom can be improved without having anxiety, stress, or care of what others do in social networks.

Finally, the sample of the study is limited with the university students, ages from generation Y, and preservice teachers. As future work, it will be interesting to investigate the differences between different generations (e.g. X, Y, Z generation) in terms of the level of FOMO they suffer from. Furthermore, the findings of the study are limited to possible factors impacting on FOMO. Future studies can focus more on the predictors of FOMO, and the purpose of the use of SNSs by individuals in their daily lives. The use of qualitative research for this would also enable researchers to assess the relationship between FOMO and SNSs for different samples and different cultures for comparative studies. It is also important to look at fear, concern, monophobia, and motivation individuals experience providing in depth and enriched information on user behaviors. Moreover, the possible relationships of FOMO and the use of SNSs may be conducive to predict the impact of the use of SNSs on FOMO.

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