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An Examination of the Relation between In-Service Preschool Teachers and Preschool Teacher Candidates' Levels of Nomophobia and FoMO

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The purpose of this study was to assess in-service preschool teachers' and preschool teacher candidates' levels of Nomophobia (NO MObile PHone phOBIA) and FoMO (Fear of Missing Out). This study is a quantitative one in its nature, and rests on the correlational survey design from descriptive research models. We recruited a total of 310 participants in the study group. We collected data through the Nomophobia Questionnaire and the FOMO Scale. We found that both the in-service preschool teachers and the preschool teacher candidates had severe levels of nomophobia and moderate levels of FoMO. The in-service preschool teachers' nomophobia scores did not differ significantly by age groups, but there was a statistically significant difference in their FoMO scores among age groups. Moreover, there were statistically significant differences between the in-service preschool teachers and the preschool teacher candidates' nomophobia and FoMO scores. Accordingly, the preschool teacher candidates had higher mean scores in their nomophobia and FoMO levels when compared with the in-service ones. Based on these findings, new inquiries about/into teachers' nomophobia and FoMO levels should be done to be able to make comparisons. Further, it could give fruitful results to recruit teachers from different branches. Another suggestion is to test teachers' nomophobia and FoMO levels in terms of demographics, particularly respecting gender and marital status as well as culture so that the justifications could be made about the results.

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Introduction

Digital mobile devices are commonly used for such purposes as communicating verbally, written or visually communication, following social media (Instagram, Facebook, LinkedIn, Twitter, YouTube, Reddit, Pinterest, etc.), taking and sharing photos, entertaining with funny apps and games, and finding direction through navigation apps (Park, 2019; Yusufoğlu, 2017). However, overuse of these devices to satisfy constant communication needs, to follow digital identities on social networks, and to do shopping with unlimited choices awaiting us have caused individuals to be addicted to digital mobile devices, particularly smartphones (Polat, 2017). This tendency of dependency leads to several disadvantages for children, individuals, and society. Children, for example, tend to spend more time on digital platforms rather than playing outside games. This situation has adverse effects on children. Spending much more time in front of screen and playing computer games for longer durations reduces face to face communication and directs children towards individual games instead of group activities (Rosen, Lim, Felt, Carrier, Cheever, Lara-Ruiz, & Rokkum, 2014).

Despite their advantages, social networks also lead to several problems. One of those problems is FoMO, or "fear of missing out" which is a social media addiction. It is a newly coined phenomenon which refers to the desire to continually follow others on social networks to know what they are doing while engaging something else (Elhai, Levine, Dvorak, & Hall, 2016; Reagle, 2015; Wegmann, Oberst, Stodt, & Brand, 2017). Individuals with high levels of FoMO are likely to develop apprehension and may become stressful in that they feel as if they were missing others' activities when they are not online. This feeling is often called as FoMO. It is defined as the feeling or the perception that others might be having rewarding experiences and having more fun than you are, so you need to deal with the sense of helplessness that you are missing out on something good by staying offline (Przybylski, Murayama, DeHaan & Gladwell, 2013). FoMO is linked to overuse of social networking sites (Błachnio & Przepiórka, 2018; Dempsey, O'Brien, Tiamiyu, & Elhai, 2019; James, Lowry, Wallace & Warkentin, 2017) and problematic use of mobile devices (Elhai, Yang, Fang, Bai, & Hall, 2020; Oberst, Wegmann, Stodt, Brand, & Chamarro, 2017; Wolniewicz, Tiamiyu, Weeks & Elhai, 2018). FoMO is associated with problematic smartphone use, both social and non-social smartphone (Wolniewicz, Tiamiyu, Weeks & Elhai, 2018). Social smartphone use includes social networking sites, communicating apps, holding phone talks, and seeking for social relationships. Non-social smartphone use, on the other hand, refers to smartphone use for such purposes as news consumption, entertainment and relaxation (Elhai, Hall, Levine & Dvorak, 2017; van Deursen, Bolle, Hegner & Kommers, 2015). FoMO is conceptualized as having the desire to stay continually connected with what others are doing (Przybylski, Murayama, DeHaan & Gladwell, 2013). FoMo is mostly defined as the fear of missing out something big (Eşitti, 2015), the anxiety that one might miss an opportunity because of absenteeism (Jones, 2014), the apprehension that an interesting event might currently be happening elsewhere (Gökler, Aydın, Ünal, & Metintaş, 2016) and a form of social anxiety that develops when individuals are deprived of social interactions (Dossey, 2014). Based on these, it can be noted that FoMO is a kind of obsession, addiction and mental disorder which adversely affects individuals.

Another problematic psychological condition when individuals have a fear of being detached from their mobile devices is Nomophobia, or "NO MObile PHone phOBIA" which is a mental health disorder in digital age (Bhattacharya, Bashar, Srivastava & Singh, 2019). It is one of the new pathologies that has occured due to the effect that mobile devices have had on society as well as the addiction to smartphones among citizens (Guerrero, Belmonte,

Rodríguez, & García, 2020). Nomophobic tendencies are likely to cause changes in individuals' daily habits. Such negative feelings of young individuals as fear or anxiety due to being unable to use their mobile phones may adversely affect their school lives and academic success. Nomophobic feelings may arise at extreme levels. Most people, for example, do not ditch their smartphones before sleeping or keep their phone in reach even when they are not using. They claim that they need to communicate with their parents and friends or must be accessible due to their occupations. They even tend to stop what they are doing when they receive a phone call in order to respond the phone call (Bhattacharya, Bashar, Srivastava & Singh, 2019). Due to these incentives, they take their smartphones with them wherever they go, spend much time using their smartphones, and feel helplessness when they are unable to use their smartphones (Yıldırım & Correia, 2015). Several basic characteristics of nomophobic individuals are as follows (Bragazzi & Del Puente, 2014): (1) to use a smartphone continuously, to spend considerable time using it and to have a charger available, (2) to feel anxious or nervous in the event of being unable to use a smartphone due to lack of network coverage or running out of battery, (3) to constantly check the smartphone's screen for received messages or calls, (4) to keep the smartphone switched on while sleeping or when there is no possibility of being called, (5) to communicate via mobile devices instead of face to face means, (6) to incur debts or to spend much money to be able to have a smartphone. Lepp, Barkley and Karpinski (2014) argue that overuse of smartphones increases stress, anxiety and depression, and thereby reducing academic success, life satisfaction and well-being.

When the studies on in-service preschool teachers and preschool teacher candidates are examined, it is seen that there is limited literature in terms of nomophobia and FoMO variables. Past studies show that there is a correlation between internet usage time and nomophobia levels (Erdem, Türen & Kalkın, 2017; Sırakaya, 2018), that frequent use of social networking sites are likely to lead to excessive smartphone use (Griffiths & Kuss, 2017), that there is a significant relationship between smartphone addiction and nomophobia (Yıldız Durak, 2019), and that there is a significant relationship between nomophobia and FoMO (Gezgin, Hamutoğlu, Sezen-Gültekin & Gemikonaklı, 2018). In a study by Gezgin, Şumuer, Arslan and Yıldırım (2017), it was found that female preschool teacher candidates had higher levels of nomophobia than male ones. Further, there is more evidence that preschool teacher candidates have often higher levels of nomophobia (e.g. Argumosa-Villar, Boada-Grau & Vigil-Colet, 2017; Dixit, Shukla, Bhagwat, Bindal, Goyal, Zaidi & Shrivastava, 2010; Sevim-Çırak & İslim, 2021; Yıldırım, Şumuer, İslim & Yıldırım, 2015).

Considering the fact that the prevalence of digital addiction cases increases across the world, particularly during the COVID-19 pandemic, it is of importance to investigate in-service preschool teachers and preschool teacher candidates' addiction levels in Turkey. As the use of technological tools and equipment increases, so do the conditions such as nomophobia and FoMO due to the problematic use of digital devices. Accordingly, when we consider that there is limited research on in-service preschool teachers and preschool teacher candidates, we argue that focusing on their nomophobia and FoMO levels will contribute to the literature. Oğuzkan and Oral (1983) mention that preschool education includes the time interval from birth to primary school and is an education process in which children are thought to be affected by their environmental factors. Therefore, it is crucial for them to have a healthy preschool period in order to develop healthily (Gezgin, Hamutoğlu, Başarmak, & Dağlı, 2020). In this sense, it is highlighted that investigating into preschool teachers' nomophobia and FoMO levels is important for effective teaching and learning (Gezgin, Hamutoğlu, Başarmak, & Dağlı, 2020). From this point of view, the purpose of this study was to assess

the in-service preschool teachers' and the preschool teacher candidates' levels of no mobile phone phobia (Nomophobia) and fear of missing out (FoMO) and to examine the relation between them. The following questions framed the study:

[RQ1]: What are the in-service preschool teachers' and preschool teacher candidates' nomophobia and FoMO levels?

[RQ2]: Do the in-service preschool teachers' nomophobia and FoMO levels differ significantly by gender, education, marital status, age, and work experience?

[RQ3]: Do the preschool teacher candidates' nomophobia and FoMO levels differ significantly by gender, high school type, grade level and frequency of internet use?

[RQ4]: Is there a statistically significant difference between the in-service preschool teachers' and the preschool teacher candidates' nomophobia and FoMO levels?

Method

Research Design

In this present study, we aimed to investigate the in-service preschool teachers' and the preschool teacher candidates' levels of no mobile phone phobia (Nomophobia) and fear of missing out (FoMO). This study is a quantitative one in its nature, and rests on the correlational survey design from descriptive research models. Researchers not only can examine variables but also can delve into relations between them through correlational screening survey design (Büyüköztürk et al., 2018).

Study group

Data were collected a total of 310 participants from Amasya and Burdur provinces in Turkey. There were 147 in-service preschool teachers (47.4%) and 163 preschool teacher candidates (52.6%) in the study group. Table 1 displays information on the participants.

Table 1. Participants

		n	**% (Within-group)**
In-service preschool teachers	Female	139	44.8 (94.6)
	Male	8	2.6 (5.4)
	Total	147	47.4
Preschool teacher candidates	Female	112	36.1 (68.7)
	Male	51	16.5 (31.3)
	Total	163	52.6

As shown in Table 1, there were 139 female and 8 male participants in the in-service preschool teachers' group, whereas the preschool teacher candidates' group included 112 female and 51 male participants. We paid special attention to the voluntary participation of the subjects.

Data collection tools

Along with a personal information form template to collect demographic information, we employed the Nomophobia Questionnaire for participants' nomophobia levels and the Fear of Missing Out Scale for participants' FoMO levels.

Personal information form

We prepared a personal information form template to collect demographic information. The in-service preschool teachers were asked about their age, gender, marital status, education, and work experience, while the preschool teacher candidates provided information about their gender, high school type, grade level and frequency of internet use.

Nomophobia Questionnaire (NMP-Q)

Originally developed by Yıldırım and Correia (2015), the Nomophobia Questionnaire (NMP-Q) was adopted into Turkish Language by Yıldırım, Şumuer, Adnan and Yıldırım (2016). The NMP-Q consists of 20 items in total and four subdimensions, namely not being able to access information (1-4 items), losing connectedness (5-9 items), not being able to communicate (10-15 items) and giving up convenience (16-20 items). The items in the scale are rated using a 7-point Likert type scale which is ordered from 1 (strongly disagree) to 7 (strongly agree). Participants are asked to select the most appropriate rating. The maximum score that can be obtained from the scale is 140. In this sense, the interpretation of score ranges in the scale is as follows: 0-20 indicates the absence of nomophobia, 21-60 indicates mild level of nomophobia, 61-100 indicates moderate level of nomophobia, and 101-140 indicates severe level of nomophobia. To assess the internal consistency of the NMP-Q and its subdimensions, Yıldırım and Correia (2015) calculated the Cronbach's alpha coefficient and found that the reliability of the NMP-Q was high (Cronbach's alpha = .95). Further, the Cronbach's alpha values for the four subdimensions of the NMP-Q were .94, .87, .83, and .81, respectively. Yıldırım, Şumuer, Adnan and Yıldırım (2016) tested the reliability of the Turkish NMP-Q and found that the reliability of the Turkish NMP-Q was high (Cronbach's alpha = .94). Further, the Cronbach's alpha values for the four subdimensions of the NMP-Q were 90, .74, .94, and .91, respectively. In this present study, we also calculated the Cronbach's alpha coefficient as .94. Based on these, it can be noted that the Turkish NMP-Q is a reliable instrument to measure participants' nomophobia levels.

Fear of Missing Out Scale (FoMOs)

Originally developed by Przybylski, Murayama, DeHaan & Gladwell (2013), the Fear of Missing Out Scale (FoMOs) was adopted into Turkish Language by Gökler, Aydın, Ünal and Metintaş (2016). The FoMOs consists of 10 items in total and a subdimension. The items in the scale are rated using a 5-point Likert type scale 1="Not at all true of me", 2="Slightly true of me", 3="Moderately true of me", 4="Very true of me", and 5="Extremely true of me". The lowest score that can be obtained from the scale is 10 and the highest one is 50. Participants are asked to answer according to what really reflects their experiences instead of what they think their experiences should be. The higher scores indicate high level of FoMO. To assess the internal consistency of the FoMOs, Przybylski, Murayama, DeHaan & Gladwell (2013) calculated the Cronbach's alpha coefficient and found that the reliability of the FoMOs was high (Cronbach's alpha = .95). Gökler, Aydın, Ünal and Metintaş (2016) tested the reliability of the Turkish FoMOs and found that the reliability of the Turkish FoMOs was high (Cronbach's alpha = .81). In this present study, we also calculated the Cronbach's alpha coefficient as .94. Based on these, it can be noted that the Turkish FoMOs is a reliable instrument to measure participants' FoMO levels.

Data analysis

We used the SPSS statistics program for the analysis of data. To test the normality of distribution of the data set, we took the skewness and kurtosis predefined boundaries between between -1 and 1 as reference (Büyüköztürk, 2010). Table 2 displays the related values.

Table 2. Skewness and kurtosis values for groups

		X	SD	Skewness	Kurtosis
In-service preschool teachers	Nomophobia	2.57	2.80	0.064	0.102
	FoMO	2.30	0.67	-0.061	-0.480
Preschool teacher candidates	Nomophobia	2.95	3.52	-0.134	-0.597
	FoMO	2.66	0.79	-0.072	-0.094

As shown in Table 2, the skewness and the kurtosis values are close to zero and are considered acceptable, so our data set is normally distributed. In this sense, we conducted the independent samples t-test and the one-way analysis of variance (ANOVA).

Findings

The findings drawn from the data are presented based on the research questions.

Findings on the first research question

[RQ1]: What are the in-service preschool teachers' and preschool teacher candidates' nomophobia and FoMO levels?

In this part of the research, we present the data driven. Table 3 displays the descriptive statistics on the nomophobia and the FoMO levels of the participants.

Table 3. Descriptive statistics on the nomophobia and the FoMO scores of the participants

	In-service preschool teachers			Preschool teacher candidates		
	N	X	SD	N	X	SD
Nomophobia	147	2.59	2.80	163	2.95	3.52
not being able to access information	147	2.67	0.98	163	3.17	1.05
losing connectedness	147	1.98	0.77	163	2.51	1.00
not being able to communicate	147	3.10	1.02	163	3.12	1.14
giving up convenience	147	2.59	0.83	163	2.99	0.97
FoMO	147	2.30	0.67	163	2.66	0.79

As shown in Table 3, the mean score of the in-service preschool teachers' levels of nomophobia is 2.59 and levels of FoMO is 2.30. The mean scores in the subdimensions are as follows: not being able to access information (2.67), losing connectedness (1.98), not being able to communicate (3.10) and giving up convenience (2.59). Further, the mean score of the preschool teacher candidates' levels of nomophobia is 2.95 and levels of FoMO is 2.66. The mean scores in the subdimensions are as follows: not being able to access information (3.17), losing connectedness (2.51), not being able to communicate (3.12) and giving up convenience (2.99).

Findings on the second research question

[RQ2]: Do the in-service preschool teachers' nomophobia and FoMO levels differ significantly by gender, education, marital status, age, and work experience?

In this part of the research, we present the data driven. To test whether the in-service teachers' nomophobia and FoMO levels differ statistically by gender, we conducted the independent samples t-test and found that the male participants had higher levels of nomophobia and FoMO when compared to the female ones (Nomophobia [p=0.69] and FoMO [p=0.11]), but these values on gender between groups did not show statistical significant difference (p>0.05).

To test whether the in-service teachers' nomophobia and FoMO levels differ statistically by marital status, we conducted the one-way analysis of variance (ANOVA). Table 4 displays the mean scores on the nomophobia and FoMO levels of the participants based on marital status.

Table 4. Differences between groups by marital status

		N	X	SD	t	df	p
Nomophobia	Married	98	2.55	0.73	-0.80	145	0.425
	Single	49	2.65	0.65			
	Total	147	2.59	0.70			
FoMO	Married	98	2.20	0.67	-2.80	145	0.006*
	Single	49	2.52	0.62			
	Total	147	2.30	0.67			

*p<0.05

As shown in Table 4, the in-service teachers' nomophobia levels did not differ significantly by marital status (p>0.05). The in-service teachers' FoMO levels, on the other hand, showed statistical significant difference in favor of the single ones ($t_{(145)}$= -2.80; p<0.05).

To test whether the in-service teachers' nomophobia and FoMO levels differ statistically by age, we conducted the one-way analysis of variance (ANOVA). Table 5 displays the mean scores on the nomophobia and FoMO levels of the participants based on age.

Table 5. Differences between groups by age

	Age range	N	X	SD	df	F	p	Difference
Nomophobia	(a) 20 to 29	63	2.73	0.70	2-146	2.40	0.094	No
	(b) 30 to 39	57	2.48	0.61				
	(c) 40 and above	27	2.47	0.82				
	Total	147	2.59	0.70				
FoMO	(a) 20 to 29	63	2.54	0.64	2-146	7.92	0.001*	a > b a > c
	(b) 30 to 39	57	2.15	0.59				
	(c) 40 and above	27	2.06	0.75				
	Total	147	2.30	0.67				

* p<0.05

As shown in Table 5, there is no statistical significant difference on the in-service preschool teachers' nomophobia levels between age ranges ($F_{(2-146)}$=2.40; p>0.05). The in-service teachers' FoMO levels, on the other hand, showed statistical significant differences between age ranges ($F_{(2-146)}$=7.92; p<0.05). Then, we ran Scheffe's post-hoc test to find out which pairs of means are significant. Post hoc analyses using the Scheffé post hoc criterion for significance indicated that participants aged 20-29 scored higher than those aged 30-39 and aged 40 and above. This means that there is a statistically significant difference in favor of the in-service preschool teachers aged 20-29 (p<0.05). However, the results showed no

statistically significant difference between the participants aged 30-39 and 40 and above. In this sense, the highest mean scores in nomophobia and FoMO levels were measured in the 20-29 age range ($X_{Nomophobia}$=2.73; X_{FoMO}=2.54), while the lowest mean scores in nomophobia and FoMO levels were calculated in the 40-above age range ($X_{Nomophobia}$=2.47; X_{FoMO}=2.06).

To test whether the in-service teachers' nomophobia and FoMO levels differ statistically by work experience, we conducted the one-way analysis of variance (ANOVA). Table 6 displays the mean scores on the nomophobia and FoMO levels of the participants based on work experience.

Table 6. Differences between groups by work experience

	Work experience	**N**	**X**	**SD**	**df**	**F**	**p**	**Difference**
Nomophobia	(a) 1 to 5 years	60	2.74	0.74	4-146	1.40	0.236	No
	(b) 6 to 10 years	38	2.51	0.60				
	(c) 11 to 15 years	28	2.50	0.59				
	(d) 16 to 20 years	11	2.49	0.80				
	(e) 21 years and above	10	2.32	0.89				
	Total	147	2.59	0.70				
FoMO	(a) 1 to 5 years	60	2.56	0.64	4-146	4.68	0.001*	a > d
	(b) 6 to 10 years	38	2.22	0.69				
	(c) 11 to 15 years	28	2.15	0.49				
	(d) 16 to 20 years	11	1.89	0.65				
	(e) 21 years and above	10	1.98	0.77				
	Total	147	2.30	0.67				

* $p<0.05$

As shown in Table 6, there is no statistical significant difference on the in-service preschool teachers' nomophobia levels between work experience ($F_{(4-146)}$=1.40; $p>0.05$). The in-service teachers' FoMO levels, on the other hand, showed statistical significant differences between age ranges ($F_{(4-146)}$=4.68; $p<0.05$). Then, we ran Scheffe's post-hoc test to find out which pairs of means are significant. Post hoc analyses using the Scheffé post hoc criterion for significance indicated that there is a statistically significant difference between those with 1 to 5 years of work experience and those with 16 to 20 years. This means that there is a statistically significant difference in favor of the in-service preschool teachers with 1 to 5 years of work experience ($p<0.05$). In this sense, the highest mean scores in nomophobia and FoMO levels were measured in the 1 to 5 years of work experience ($X_{Nomofobi}$=2.74; X_{FoMO}=2.56), while the lowest mean scores in nomophobia were calculated in those with 21 years and above work experience and the lowest mean scores FoMO levels were calculated in those with 16 to 20 years of work experience ($X_{Nomofobi}$=2.32; X_{FoMO}=1.89).

We conducted the one-way analysis of variance (ANOVA) to see whether the in-service teachers' nomophobia and FoMO levels differ statistically by education (Nomofobi [p=0.6] and FoMO [p=0.58]) and found that there was no statistically significant difference between groups by education ($p>0.05$).

Findings on the third research question

[RQ3]: Do the preschool teacher candidates' nomophobia and FoMO levels differ significantly by gender, high school, grade level and frequency of internet use?

In this part of the research, we present the data driven. To test whether the preschool teacher

candidates' nomophobia and FoMO levels differ statistically by gender, we conducted the independent samples t-test (Nomophobia [p=0.20] and FoMO [p=0.32]) and found no statistically significant difference (p>0.05). Similarly, we conducted the one-way analysis of variance (ANOVA) to see whether the preschool teacher candidates' nomophobia and FoMO levels differ statistically by high school type (Nomophobia [p=0.25] and FoMO [p=0.82]) and found that there was no statistically significant difference between groups by high school type (p>0.05).

To test whether the preschool teacher candidates' nomophobia and FoMO levels differ statistically by frequency of internet use, we conducted the one-way analysis of variance (ANOVA). Table 7 displays the mean scores on the nomophobia and FoMO levels of the participants based on frequency of internet use.

Table 7. Differences between groups by frequency of internet use

	Frequency of internet use	**N**	**X**	**SD**	**df**	**F**	**p**	**Difference**
Nomophobia	(a) 1 to 3 hours	54	2.53	0.94	2-162	10.742	0.000*	a < b a < c
	(b) 4-6 hours	73	3.22	0.69				
	(c) 6 hours and above	36	3.03	0.91				
	Total	163	2.95	0.07				
FoMO	(a) 1 to 3 hours	54	2.46	0.78	2-162	2.890	0.059	No
	(b) 4-6 hours	73	2.77	0.80				
	(c) 6 hours and above	36	2.77	0.75				
	Total	163	2.66	0.79				

* p<0.05

As shown in Table 7, the results showed statistical significant differences on the preschool teacher candidates' nomophobia levels by frequency of internet use ($F_{(2-162)}$=10.742; p<0.05). Then, we ran Scheffe's post-hoc test to find out which pairs of means are significant. Post hoc analyses using the Scheffé post hoc criterion for significance indicated that there is a statistically significant difference between those with 1 to 3 hours and those with 4 to 6 hours. This means that there is a statistically significant difference in favor of those use internet 4 to 6 hours per day (p<0.05). The preschool teacher candidates' nomophobia levels, however, showed no statistically significant difference by frequency of internet use between groups (F=2.890; p>0.05).

We conducted the independent samples t-test to see whether the preschool teacher candidates' nomophobia and FoMO levels differ statistically by grade level (Nomofobi [p=0.41] and FoMO [p=0.95]) and found that there was no statistically significant difference between groups by grade level (p>0.05).

Findings on the fourth research question

[RQ4]: Is there a statistically significant difference between the in-service preschool teachers' and the preschool teacher candidates' nomophobia and FoMO levels?

In this part of the research, we present the data driven. To find out whether there is a statistical significant difference between the in-service and the preschool teacher candidates' nomophobia and FoMO levels, we conducted the independent samples t-test. Table 8 displays the results on the nomophobia and FoMO levels of the participants based on the fourth

research question.

Table 8. The independent samples t-test results on the difference between the in-service preschool teachers and the preschool teacher candidates

		N	X	SD	t	df	p
Nomophobia	In-service preschool teacher	147	2.59	0.70	-4.00	308	0.000*
	Preschool teacher candidates	163	2.95	0.88			
	Total	310	2.78	0.82			
FoMO	In-service preschool teacher	147	2.30	0.67	-4.31	308	0.000*
	Preschool teacher candidates	163	2.66	0.79			
	Total	310	2.49	0.76			

* p<0,05

As shown in Table 8, the mean score of the in-service preschool teachers' levels of nomophobia is 2.59 and levels of FoMO is 2.30, while the mean scores of the preschool teacher candidates' levels of nomophobia is 2.95 and levels of FoMO is 2.66. When we examine the results to find out if there is a statistical significant difference, it is seen that the mean scores of the participants' nomophobia and FoMO levels differ significantly (Nomophobia ($t_{(308)}$=-4.00; p<0.05) and FoMO ($t_{(308)}$=-4.31; p<0.05). In this sense, it can be noted that the preschool teacher candidates have higher levels of nomophobia and FoMO when compared with the in-service preschool teachers.

Discussion and conclusion

In this present study, we have sought to examine the in-service preschool teachers' and the preschool teacher candidates' levels of no mobile phone phobia (Nomophobia) and fear of missing out (FoMO) and to investigate into the relation between them. We found that both the in-service preschool teachers and the preschool teacher candidates had severe levels of nomophobia. There is evidence in the literature corroborating with this finding. Previous studies have revealed that the nomophobia levels of university students are at moderate and above levels (e.g., Adnan & Gezgin, 2016; Gezgin & Çakır, 2016; Essel, et al., 2022). We measured the in-service preschool teachers' and the preschool teacher candidates' levels of FoMO at moderate level. There is evidence in the literature corroborating with this finding. Past studies have revealed that the FoMO levels of preschool teacher candidates are at moderate level (e.g.Gezgin, Hamutoğlu, Gemikonaklı & Raman, 2017; Hoşgör, Koç Tütüncü, Gündüz Hoşgör & Tandoğan, 2017). Based on these, we conclude that both in-service teachers and preschool teacher candidates suffer from nomophobia and FoMO which are considered as disorders in this digital age.

We examined the in-service preschool teachers' nomophobia and FoMO levels by gender, education, marital status, age and work experience to assess if there were statistically significant differences. We also examined statistically significant differences in the preschool teacher candidates' nomophobia and FoMO levels by gender, high school type, grade level and frequency of internet use. The results showed that there were no statistically significant differences by gender even though the male in-service preschool teachers had higher scores than female ones in both the nomophobia and the FoMO levels. Likewise, the preschool teacher candidates' nomophobia and FoMO levels did not differ significantly by gender.

Previous research provide evidence that nomophobia levels do not differ signigicantly by gender (e.g., Adnan & Gezgin, 2016; Dixit, Shukla, Bhagwat, Bindal, Goyal, Zaidi, & Shrivastava, 2010; Kocabaş & Sezer-Korucu, 2018; Özdemir, Çakır, & Hussain, 2018; Sezer & Atılgan, 2018). In another study, however, it was concluded that female university students' nomophobia scores were higher than those of male ones (Çırak, 2021). Gezgin, Şumuer, Arslan and Yıldırım (2017) found similar findings, as well. Considering the fact that nomophobia levels may differ by culture (Çırak, 2021), the differences in the nomophobia levels by gender can be considered as normal. The studies on FoMO do not show differences by gender, as well (e.g., Jood, 2017; Kırık, Arslan, Çetinkaya & Gül, 2015). Based on these, when we consider that individuals' nomophobia and FoMO tendencies are closely linked to their internet and social media addictions, the gender variable may not significantly affect the levels of nomophobia and FoMO.

The in-service teachers' nomophobia and FoMO levels did not differ significantly by marital status, while their FoMO mean scores showed statistically significant difference in favor of the single participants. Although there is no direct evidence in the literature showing whether participants' nomophobia and FoMO levels differ significantly by marital status or not, there is some data that participants' social media addiction levels differ significantly (e.g. Demir, 2019; Duman, 2019). There is also evidence to suggest that social media addiction levels show no statistically significant difference (e.g. Macit, 2019).

The in-service teachers' nomophobia and FoMO levels did not differ significantly by age ranges, while their FoMO mean scores showed statistically significant difference in terms of age. In this sense, the highest mean scores in nomophobia and FoMO levels were measured in the 20-29 age range, while the lowest mean scores in nomophobia and FoMO levels were calculated in the 40-above age range. However, Sezer and Atılgan (2018) found statistically significant difference between nomophobia and age. There are also studies showing that nomophobia do not differ significantly by age (e.g.Yıldırım, Şumuer, Adnan & Yıldırım, 2016; Çağan, Ünsal & Çelik, 2014). Similarly, Jood (2017) found no statistically significant difference between FoMO scores and age. Another variable showing no statistically significant difference was work experience of the in-service preschool teachers, but their FoMO levels differed significantly by work experience. In this sense, the highest mean scores in nomophobia and FoMO levels were measured in the 1 to 5 years of work experience. It is seen that those who are at the beginning of their careers had higher FoMO scores. Although there was no statistically significant difference by age, the FoMO scores differed significantly. This may have stemmed from the fact that those in the age range 20 to 29 may have been included in the 1 to 5 years and 6 to 10 years of work experience ranges.

The in-service teachers' nomophobia and FoMO levels did not differ significantly by education. Likewise, the preschool teacher candidates' nomophobia and FoMO levels did not differ significantly by high school type. Although there is no direct evidence in the literature showing whether participants' nomophobia and FoMO levels differ significantly by education or school type or not, there is some data that participants' social media attitudes levels do not differ significantly by education (e.g. Çap, 2017).

The preschool teacher candidates' nomophobia mean scores differed significantly by frequency of internet use. In this sense, those using internet four to six hours per day had higher nomophobia levels than those spending one to three hours using internet on a daily basis. Their FoMO levels, however, showed no statistically significant difference by frequency of internet use. Duman (2019) found a statistically significant relationship between

frequency of internet use and social media addiction. Deniz and Gürültü (2018) found similar findings showing that students' social media addiction levels differ statistically by frequency of internet use. Bavlı, Katra and Günar (2018) found a statistically significant positive correlation between daily smartphone use duration and addiction scores, as well. However, in another study by Hoşgör, Koç Tütüncü, Gündüz Hoşgör and Tandoğan (2017), there was no statistically significant difference between smartphone use duration and addiction levels. Based on these, the statistically significant relationship between the preschool teacher candidates' frequency of internet use and nomophobia levels may have stemmed from overuse of their smartphones. However, the fact that there was no statistically significant relationship between the preschool teacher candidates' frequency of internet use and FoMO levels may have stemmed from their internet use for such purposes as getting information or learning as well as following the events happening.

The preschool teacher candidates' nomophobia and FoMO mean scores did not differ significantly by grade level. The highest mean scores in nomophobia and FoMO were calculated in the 20-29 age range. Considering the fact that almost all preschool teacher candidates are between 20 and 29 age range, it can be noted that they are included in the group that has the highest scores in terms nomophobia and FoMO. Therefore, it can be considered as normal that there were no differences among grade levels in terms of nomophobia and FoMO scores.

The results showed that there was statistically significant difference in the in-service preschool teachers' and the preschool teacher candidates' nomophobia and FoMO mean scores. In this sense, the mean scores of the preschool teacher candidates were higher than those of the in-service preschool teachers. This statistically significant difference may have stemmed from the age variable. The preschool teacher candidates are younger than the in-service preschool teachers. Previous studies have examined nomophobia, FoMO and other similar variables. In one of those, Gezgin, Hamutoglu, Sezen-Gültekin and Gemikonaklı (2018) surveyed on university students and found a positive statistically significant relationship between nomophobia and FoMO. In another one, Ayar, Gerçeker, Özdemir & Bektaş (2018) also recruited university students and concluded that there was a statistically significant relationship between nomophobia and social media addiction. Şumuer, Gezgin and Yıldırım (2018) found the nomophobia level as the strongest predictor of smartphone use for other purposes except for learning during the courses and concluded that there were statistically significant differences between variables. Marlina (2017) conducted a study with young individuals aged 18 to 25 and found positive statistically significant relationship between internet addiction tendencies and FoMO. Based on these, the difference between the in-service preschool teachers and the preschool teacher candidates in terms of nomophobia and FoMO may have stemmed from the fact that the latter is closely interested in technological developments.

Recent technological developments have affected almost all the individuals in the society. Teachers are no exception. Therefore, we delved into the in-service preschool teacher and preschool teacher candidates' levels of nomophobia and FoMO and examined the relationship between them. Our findings showed statistically significant differences between the in-service preschool teacher and preschool teacher candidates in terms of nomophobia and FoMO.

Limitations and recommendations for future research

Commenting on the limitations of the present study, we can note that we recruited the participants through convenience sampling method. Future studies should be conducted on more specific groups to examine the nomophobia and the FoMO. Further, we designed this study as a correlational one. Future researchers could delve into casual relationships among variables. The data were based on the self-responses of the participants. Future researchers should perform qualitative analyses on the nomophobia and the FoMO variables through depth interviews and observations.

Based on the findings of this study, we can recommend that new inquiries on teachers' nomophobia and FoMO levels should be done to be able to make comparisons. Further, it could give fruitful results to recruit teachers from different branches. Further, one suggestion is to test teachers' nomophobia and FoMO levels in terms of demographics, particularly gender and marital status as well as culture so that the justifications could be made about the results. Researchers should delve into the variables, namely, nomophobia and FoMO via different factors such as occupation, digital literacy, and others.

Declarations

On behalf of all authors, the corresponding author states that there is no conflict/competing of interest.

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