

Relationship between nomophobia and fear of missing out among Turkish university students

Deniz Mertkan Gezgin, Faculty of Education, Trakya University, 22030 Edirne, Turkey
Nazire Burcin Hamutoglu*, Faculty of Education, Ahi Evran University, 40002 Kirsehir, Turkey
Gozde Sezen-Gultekin, Faculty of Education, Sakarya University, 54187 Sakarya, Turkey
Orhan Gemikonakli, Middlesex University, NW4 4BT London, UK

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Abstract

To the literature, it is seen that there are some studies demonstrating the relationship between FOMO and problematic smartphone use, or FOMO and smartphone addiction. However, no study has yet been found that explains the relationship between nomophobia and FOMO. Therefore, the aim of this study is to examine the effect of FOMO on nomophobia by investigating the relation between nomophobia and FOMO. No mobile phobia, i.e., nomophobia, is about a contemporary fear of not having a chance to communicate via mobile phone, while Fear of Missing Out, i.e., FOMO, is known to be correlated with the problematic use of social networking sites (SNSs). This descriptive study is a correlational study adopting a correlational survey model. The data were collected from a convenient sample of 538 university students via nomophobia questionnaire (NMP-Q) and FOMO scales as data collection tools. The results show that a positive moderate level of the relationship was found between Nomophobia and FOMO levels.

Keywords: Fear of missing out, nomophobia, SNS, university students.

* ADDRESS FOR CORRESPONDENCE: **Nazire Burcin Hamutoglu**, Faculty of Education, Ahi Evran University, Kirsehir, Turkey.
E-mail address: bhamutoglu@sakarya.edu.tr / Tel.: +90 3862802807

1. Introduction

In addition to the classic features and possibilities provided by mobile phones, smartphones are mobile communication devices with an operating system designed by adding the features of a personal digital assistant, a product of the computer world. In recent years, a number of mobile applications have been developed and advanced features have been added to mobile phones. Having these advanced features and the mobile applications, smartphones facilitate easier access to information and online services (e.g., browsing the web, accessing social networks, entertainment, travel arrangements, e-commerce, banking, conducting business, etc.). Mobile phones are widely used by individuals, especially by young individuals in developing countries (Biglu & Ghavami, 2016). In other respects, while smartphones have mobile applications that make life easier, young individuals mostly use their smartphones for social media (Gezgin, 2017; Gezgin & Cakir, 2016), which encourages individuals to become addicted and offers activities such as entertainment, communication, information exchange and multimedia sharing among young individuals (Karadag, Tosuntas, Erzen, Duru, Bostan, Sahin & Babadag, 2016). All these are driven by the ability of social networks to offer easy and quick access to real-time activities for learning, socialising and entertainment (Fox & Moreland, 2015).

According to the We Are Social (2017) report, in Turkey, 95% of mobile device users own a mobile phone and 75% of them use a smartphone. It is also reported that there are 48 million real social media users in Turkey and the number of individuals using social media by mobile device has increased by 17% over the past year. According to the Pew Research Centre (2016) report, 93% of smartphone users are between the ages of 18–34 compared to 53% among those who are over age 34 in Turkey. These reports show the extent of the use of smartphones, especially among the young population in Turkey.

While smartphones impact young individuals' lives, especially in the context of communication, entertainment and research, they can also create physical problems such as headache, neck pain, spine, hand and forearm injuries and sleep disturbances (Canan et al., 2013; Demirci, Akgonul & Akpinar, 2016; Haug et al., 2015; Inal, Cetinturk, Akgonul & Savas, 2015; Randler et al., 2016; Roberts, Yaya & Manolis 2014; Samaha & Hawi, 2016; Shan et al., 2013; Yioultsis et al., 2002; Xie, Szeto, Dai & Madeleine, 2016), and in the event of excessive and problematic use; can cause mental problems such as low life satisfaction, stress, anxiety, nervousness and depression (Elhai, Levine, Dvorak & Hall, 2017; Gupta, Garg & Arora, 2016; Lepp, Barkley & Karpinski, 2014; Samaha & Hawi, 2016; Tao et al., 2017). There are also studies showing the negative impact of the improper use of these devices on students' academic lives leading to a decline in their academic achievements (Alosaimi, Alyahya, Alshahwan, Al Mahyijari & Shaik 2016; Gupta et al., 2016; Hosgor, Tandogan & Hosgor, 2017; Junco & Cotton, 2012; Karpinski, Kirscher, Ozer, Mellot & Ochwo, 2013; Matoza-Baez & Carballo-Ramirez, 2016; Rosen, Carrier & Cheever, 2013; Samaha & Hawi, 2016; Thomas, 2016; Wood et al., 2012). Moreover, mental health problems originating from excessive and problematic use of smartphones are increasing among young individuals all around the world day by day (Bianchi & Phillips, 2005; Biglu & Asgharzadeh, 2011). Nomophobia is considered to be one of these mental problems (King et al., 2013).

1.1. Nomophobia

Nomophobia, or No Mobile Phobia, is defined as the fear of being deprived of a mobile phone. Nowadays, it is also referred to as smartphone deprivation since smartphones are supposed to take the place of traditional mobile phones. In terms of clinical psychology, the definition of nomophobia is also expressed as irrational and involuntary fear that an individual cannot access or cannot communicate on a portable computing device (King et al., 2013; Yildirim & Correia, 2015). Users that develop nomophobic behaviours start to worry when they forget to take their phones with them, are out of charge or coverage and they obsessively control phones even when they are next to them. At the advanced stage, these symptoms may be seen even when the phone is next to them and this

situation can go as far as having panic attacks (Adnan & Gezgin, 2016; Dixit et al., 2010; Gezgin & Cakir, 2016; Pavithra, Madhukumar & Mahadeva, 2015; Sharma, Sharma, Sharma & Wavare, 2015; Yildirim, Sumuer, Adnan & Yildirim, 2016).

Frequently checking phones, spending too much time with their mobile phones, avoiding places where mobile phones are prohibited, carrying a charger at all times, owning more than one mobile phone, keeping phones on during night, going into expense and debt via smartphone, spending time with phone before sleep, checking phone upon wake-up can be listed as the common behaviours among nomophobic individuals (Akilli & Gezgin, 2016; Bragazzi & Del Puente, 2014). Since nomophobia is a relatively new phenomenon, there are few studies and results describing the unique symptoms of smartphone addiction in terms of behavioural patterns and symptoms (Kim, Lee, Lee, Nam & Chung, 2014). Earlier studies show that almost the same symptoms are seen for nomophobia, such as smartphone dependency, mobile phone dependency and Internet dependency (Al-Barashdi, Bouazza & Jabur, 2015; Ching et al., 2015). In addition, it is observed that the majority of the participants in these studies consist of adolescents and university students due to the increasing use of smartphones and social media among young individuals.

The studies conducted with adolescents and university students from a variety of contexts, including India (Abraham, Mathias & Williams, 2014; Dixit et al., 2010; Jena, 2015; Kanmani, Bhavani & Maragatham, 2017; Kaur & Sharma, 2015; Pavithra et al., 2015; Sharma, Sharma, Sharma & Wavare, 2015), France (Tavolacci, Meyrignac, Richard, Dechelotte & Ladner, 2015), the USA (Cheever, Rosen, Carrier & Chavez, 2014; Yildirim & Correia, 2015) and Germany (Davie & Hilber, 2017; Spitzer, 2015) reported that nomophobia spreads among young individuals, deteriorating the quality of life of young individuals due to anxiety and fear. Studies conducted among adolescents and university students in Turkey also show that individuals who have nomophobic behaviour experience anxiety and fear, especially in the case of 'not being able to communicate' or 'inability to access information' (Adnan & Gezgin, 2016; Akilli & Gezgin, 2016; Erdem, Kalkin, Turen & Deniz, 2016; Gezgin & Cakii, 2016; Hosgor, Tandogan & Hosgor, 2016; Gezgin, 2017; Uysal, Ozen & Madenoglu, 2016; Yildirim et al., 2016). It has been revealed that the tendency to show nomophobic behaviour is higher in young individuals who are dependent on smartphones and cannot do without, who use mobile Internet more frequently during daytime, and use smartphone intensively for social network usage (Hosgor, Tandogan et al., 2017; Gezgin, 2017; Gezgin & Cakir, 2016).

Social networks accommodate applications, which allow instant story and answer sharing, and are known to be communication channels, especially used by young individuals to keep in touch, network and follow-through, where interaction is particularly effective (Turel & Serenko, 2012). Nowadays, young individuals have access to various social networking applications from their computers and with their smartphones. Since young individuals use social networking sites (SNSs) more intensively on their smartphones, they are always online in the virtual world continuously. Social networking applications like Facebook and Twitter, in particular, maintain their popularity and are widely used (We Are Social, 2017). In addition, applications such as Snapchat and Instagram in which mostly teenagers share stories, photos and videos to share their experiences with their followers, are becoming increasingly popular.

Young individuals follow their friends, their family members and the celebrities whom they are interested in, or events using these applications. Thus, young individuals make more frequent phone checks to respond to messages from their friends, follow up their messages and conversations and spend more time on social network sites via the mobile Internet on smartphones (Fuster, Chamarro & Oberst, 2017). This situation might make young individuals dependent on social networks and smartphones, as well as develop nomophobia. Conversely, Kuss and Griffiths (2017) state that nomophobia might cause problematic smartphone use (Bragazzi & Del Puente, 2014) and that SNS addiction may be a factor in this. In this context, discovering the causes that may give rise to nomophobic behaviour among young individuals and a better understanding of nomophobia may be useful in generating a solution to this ongoing and rapidly increasing problem. In relation to the

nomophobia in the study, it is assumed that FOMO might cause problematic smartphone use (Clayton, Leshner & Almond., 2015), smartphone addiction (Chotpitayasunondh & Douglas, 2016), problematic social networking (Abeeel & Van Rooij, 2016; Przybylski, Murayama, & DeHaan, 2013) and constant presence on social networks (Elhai, Levine, Dvorak & Hall, 2016) during daytimes.

1.2. FOMO

FOMO is considered a new type of addiction (Grohol, 2017), especially after smartphones entry into our lives that causes individuals to spend quite a long time on social networks due to their fear of not being able to keep abreast of developments in social networks (Dossey, 2014; Przybylski et al., 2013). Individuals, demonstrating FOMO symptoms constantly, stay online on social networks with the fear of missing something on social media and/or fear of losing something. They share all their behaviours through photos, messages etc. through social networks, strictly check and follow what other users do and share (Erturk, 2012).

In a study conducted in England by Buglass, Binder, Betts & Underwood (2017), it is stated that FOMO might predict high SNS use. As the reason for the emergence is to connect with friends with whom the connection had been lost for a long time, the studies in the literature state that the most frequently used SNS is Facebook (Statista, 2016) across the world. It is mostly used to view others' profiles (69.57%) and look at others' photos (58.7%) (Pempek, Yermolayeva & Calvert, 2009). In a survey study by Oberst, Wegmann, Stodt, Brand and Chamarro (2017) conducted with 5,280 social media users living in Latin American countries ($N = 5280$), they found that FOMO was one of the predictors of the problematic use of SNS. When the studies in the Turkish context are examined, it is reported that among university students the social network applications related to FOMO are Twitter, Swarm, Snapchat and Instagram (Gezgi, Hamutoglu, Gemikonakli & Raman, 2017). It is also reported that applications such as Instagram and Snapchat, which have instant story feature and delete the shared story after a while, may play an active role in young individuals following each other and this may be related to FOMO. Another study by Gokler, Aydin, Unal & Metintas (2016) demonstrated that the FOMO levels of the students were related to the number of social media accounts in which they were members and the frequency of controlling Internet access devices for Facebook and Twitter check. In the same study, it was also revealed that there is a negative correlation between the life satisfaction of the students and FOMO.

1.3. The aim of study

This study focuses on two cases with very similar symptoms, nomophobia, referring to 'not being able to reach to information (NRI)' and 'not being able to communicate (NC)' and FOMO, defined as a fear of missing out with connected friends, especially on social media, and follow them and their events. While FOMO studies are concerned with excessive use of social networks, and not wanting to miss out anything on it, nomophobia cannot only be limited to losing the connection on social media with friends, and it can be explained a fear on not having connection with family members, as well. In this context, it is worth to investigate that the effects of FOMO—thereby caused excessive use of SNSs, on nomophobia, which has similar behaviours in terms of finding out the structure of nomophobia.

Modern technology considerably affects our cognition, behaviour, safety, relationships with family and friends and performance so that our relationship with technology has spawned a variety of conditions, including FOMO and nomophobia which are centred on a need to be connected constantly (Gazzaley & Rosen, 2016p. 136). In this study, it is claimed that FOMO and nomophobia have some common features in the sense that they both relate to individuals' behaviours with regards to online activities and tools used for this purpose. In this context, the research problem is to investigate the effect of FOMO on nomophobia levels of university students as stated below research questions.

RQ1: What are the university students' nomophobia and FOMO level?

RQ2: What is the relationship between university students' nomophobia sub levels and FOMO level?

RQ3: How much does the university students' FOMO level predict the nomophobia level?

2. Method

2.1. Research design

This descriptive study is a correlational study adopting a correlational survey model, a kind of approach aiming to describe a situation with its existing facts (Karasar, 2009). The purpose of this research methodology is making a description by depicting the existing state about the research topic (Buyukozturk, Kilic Cakmak, Akgun, Karadeniz & Demirel, 2009).

2.2. Study group

The study group consisted of 548 university students, studying at Trakya University in 2015–2016, spring semester. The participants who have a smartphone and an SNS account involved the study through convenient sampling and 64 (67.7%) of the participants were female and 174 (32.3%) male and the mean age was 23.40.

Table 1. Socio-demographic characteristics of the participants

	<i>N</i>	%
Gender		
Female	364	67.7
Male	174	32.3
Actively using SNS during a day		
No	64	11.9
Yes	474	88.1
Total	538	100.0

2.3. Data collection tools

Nomophobia Scale (NMP-Q): The scale was originally improved by Yildirim and Correia (2015) and Yildirim et al. (2016) adapted it into Turkish. It was a seven-point Likert scale including 20 items and four sub-dimensions such as giving up convenience (GUC), losing connectedness (LC), not being able to access information (NAI) and not being able to communicate (NC). The Cronbach's alpha reliability coefficients of the original scale 0.95 in total, and 0.81, 0.87, 0.94, 0.083 in the sub-dimensions, respectively. On the other hand, the reliability coefficients of the Turkish version were 0.92, and 0.91, 0.74., 0.90, 0.94 in the sub-dimensions, respectively. Cronbach alpha internal consistency coefficient was 0.91 for the reliability of the study while the reliability coefficients of these four sub-dimensions were 0.87, 0.79, 0.83, 0.85, respectively.

FOMO Scale: The FoMO scale (FoMOs) was originally improved by Przybylski, Murayama, DeHaan and Gladwell (2013), and Gokler et al. (2016) adapted it into Turkish. It is a five-point Likert scale and includes one dimension with 10 items. Each item in the scale is scored between 1 (not true) and 5 (extremely true) points. The scores of the subjects ranged from 10 to 50 and there is no reverse item in the scale. As the score on the scale increases, the individuals' FOMO level increases in the same manner. The reliability coefficient calculated using Cronbach's alpha of the original scale was 0.95 and the confidence coefficient of the scale adapted to Turkish was 0.81. In the study, the reliability coefficient was 0.86.

2.4. Data collection and analysis

The process of collecting data was performed in a digital environment. SPSS 23.0 was used for the analysis. To check for normality, Kolmogorov–Smirnov test was carried out and that normal distribution values were smaller than the level of statistical significance was observed ($p < 0.05$). The Kurtosis and Skewness coefficients of the factors were calculated for the normality condition of the parametric tests. Since the coefficients of Skewness and Kurtosis remain within the range of -1 to $+1$, which indicate that the scores have a normal distribution (Morgan, Leech, Gloeckner & Barrett, 2004). The obtained data were analysed through descriptive statistics, Pearson Correlation Coefficient, linear simple regression to define the properties of the sample, see the relationship between nomophobia and FOMO and see the effects of FOMO on nomophobia, respectively. The assumptions for the parametric tests such as normality ($p > 0.05$), multicollinearity ($-3 < \rho < +3$), Variance Inflation Factor-VIF (<10) and tolerance value (>10) were provided (Hair, Black, Babin, Anderson & Tatham, 2006; Tabachnick & Fidell, 2001). Table 2 shows the Skewness-Kurtosis coefficients for Nomophobia and its sub-dimensions and FOMO.

Table 2. Nomophobia scale and sub-dimensions' skewness and kurtosis coefficients

Scale	Sub-dimensions	Skewness	Kurtosis
Nomophobia	NRI	0.043	-0.484
	LC	0.084	-0.950
	NC	-0.129	-0.996
	GUC	0.738	-0.440
	Total scale	0.130	-0.775
FOMO	Total scale	0.347	-0.367

Table 2 shows that the Skewness and Kurtosis values of the mean scores of the factors have a normal distribution.

3. Findings

Table 3. Nomophobia scale and sub-dimensions' skewness and kurtosis coefficients

Scale	Sub-dimensions	N	\bar{X}	sd
Nomophobia	NRI	538	4.19	1.28
	LC	538	3.68	1.61
	NC	538	4.27	1.73
	GUC	538	2.77	1.58
	Total scale	538	3.73	1.26
FOMO	Total scale	538	2.48	0.84

Table 3 shows that the nomophobia levels of university students are at moderate levels ($\bar{X} = 3.73$). According to the sub-dimensions of the scale, the scores were found to be ($\bar{X} = 4.19$) in NRI, ($\bar{X} = 3.68$) in LC, ($\bar{X} = 4.27$) in NC and ($\bar{X} = 3.43$) in GUC. In addition, when the FOMO scale was examined, the mean score was ($\bar{X} = 2.48$). Earlier studies on Nomophobia in the Turkish context (such as Akilli & Gezgin, 2016; Adnan & Gezgin, 2016; Erdem et al., 2016; Gezgin & Cakir, 2016; Gezgin, 2017; Hosgor et al., 2016; Uysal et al., 2016; Yildirim et al., 2016) illustrated that the participants' views on the factors of NRI and NC were above average, while the other two factors were found to be below average. It also seems that an average score similar to this was reported in the studies on FOMO (such as Gezgin et al., 2017; Gokler et al., 2016; Hosgor, Tutuncu Koc, Hosgor Gunduz & Tandogan, 2017). In this context, it can be stated that the findings obtained in this study support the literature.

3.1. Findings on the relationship between the prevalence of nomophobia and FOMO

To determine whether any relationship would exist between the nomophobia and the FOMO of university students Pearson’s correlation analysis technique was applied, considering the scope of the study. The findings show that the relationship between nomophobia and FOMO is positively significant and the relation is at a moderate level ($r = 0.642$, $p < 0.01$). Based on results, it can be stated that the users who have higher FOMO are getting more nomophobic behaviours deliberately display.

Table 4. Pearson correlation matrix on the relationship between nomophobia and FOMO

	NRI	LC	NC	GUC	Nomophobia Total	FOMO total
NRI	1					
LC	0.383**	1				
NC	0.309**	0.702**	1			
GUC	0.307**	0.633**	0.547**	1		
Nomophobia total	0.547**	0.883**	0.869**	0.802**	1	
FOMO total	0.288**	0.592**	0.521**	0.579**	0.642**	1

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

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

Correlation coefficient between 0 and 0.29 is accepted as low; between 0.30 and 0.69 is accepted as moderate; between 0.70 and 1.0 is accepted as strong (Warner, 2008). In this context, Pearson $r = 0.642$ and the significance value of 0.0 lower than 0.01 indicate a statistical significance.

Table 5. Linear regression using total FOMO to predict total nomophobia

Variables	B	Std E	Beta	t	p
Nomophobia Total	1.341	0.130		10.306	0.00
FOMO Total	0.966	0.050	0.642	19.397	0.00

$R: 0.642$, R^2 (corrected): 0.412; $F: 376.226$; $p < 0.05$).

The study revealed a significant, moderate level of correlation between nomophobia and FOMO ($R = 0.642$, $p < 0.05$) and FOMO regresses 41% of nomophobia ($R^2 = 0.412$, $F = 376.226$, $p < 0.05$).

4. Discussion, conclusion and implications

This study investigates the relationship between the tendency of university students’ nomophobia behaviour and their FOMO levels. While there was a low significant positive correlation between the nomophobia’s sub-dimension of NRI and the FOMO, the other sub-dimensions were LC, NC, GUC and FOMO had a moderate significant positive relationship. Furthermore, there was a moderate significant positive correlation between total nomophobia and FOMO in the study. The findings show that FOMO predicts Nomophobia by 41%. Therefore, it can be stated that FOMO is one of the important predictors of Nomophobia. It can be concluded that fear of missing out something underlies the sub-dimensions Not Being Able to Communicate and Losing connectedness since the younger generation communicates mostly through SNS. As the FOMO increases the use of SNS and makes it problematic, it may be thought that there is also the fear of missing out something underlies this communication concern. When the sub-dimension of Not Being Able to Access Information is examined, it seems that

there is a low relationship. This situation can be addressed in further studies by revealing which information poses a problem if it cannot be accessed. This recommendation could contribute to the literature whether the students are in trouble when they missed their families and friends social publications on SNS or other information on SNS (such as bitcoin, news, etc.).

Considering the latest studies on FOMO and SNS, and obtained low relationship between not being able to access information and FOMO, it can be stated that this finding could be interpreted due to SNS. However, while nomophobia and FOMO show similar symptoms (i.e. having anxiety, fear, give up convince), this result could be considered a joint venture. Although these two concepts are thought to overlap, they are considered to have separated at the point of information access. The individual who cannot access information or cannot communicate may think that he/she has missed something and might begin to feel anxiety, fear, etc.

To the literature, it is seen that there are some studies demonstrating the relationship between FOMO and problematic smartphone use, or FOMO and smartphone addiction. However, no study has yet been found that explains the relationship between nomophobia and FOMO since the nomophobia is still a new phenomenon and has been discussed in the field. At this point, it should be noted that the nature of nomophobia is related to the fear of not being able to enter social connections and the preferences of online social interaction (Kuss & Griffiths, 2011). It can be also stated that nomophobia is structurally related to smartphone dependency and social media dependency and is an influential factor in the formation of social network dependency (Kuss & Griffiths, 2017). There are also some other studies (such as Gezgin, 2017; Gezgin, Sahin & Yildirim, 2017) showing that the nomophobia is spreading among social network users, increasing with the increase of mobile Internet use and most importantly that the individuals who spend a long time during the day with smartphones as a technological tool tend to develop nomophobia. In light of this information, it is thought that the studies addressing the relationship between FOMO and smartphone dependency or problematic smartphone usage will contribute to the results of this study.

In some FOMO studies, it was stated that FOMO was associated with problematic mobile phone use and so it might be a predictor of smartphone addiction (Cheever et al., 2014; Hong, Chiu & Huang, 2012; Lepp et al., 2014). In another study, it was found that FOMO and smartphone addiction are correlated significantly positive (Chotpitayasunondh & Douglas, 2016).

The low-level positive relationship between NRI nomophobia sub-dimension and FOMO will be a reason for further studies in terms of what information they can't have access to. It is important to identify the type of information that causes fear and experience when cannot be accessed. Inability to access information shared by their friends, general information, academic research, news, etc. may well have different implications. In addition, according to Gokler et al. (2016), there is no connection between the FOMO level and routine daily process search and mail checking, emphasising SNS. Findings of this study suggest that FOMO, which is considered as a causal factor for problematic and excessive social media usage (Fuster et al., 2017), may be an explanatory factor that causes excessive social media usage by smartphone to cause individuals to have nomophobic behaviour. Social media use via smartphones is popular among the individuals who are digital natives. From this perspective, the duration of smartphone ownership is also significant for FOMO. In light of the findings, it can be stated that FOMO is correlated with social media use, and social media use via smartphones is prevalent among young individuals. From this point of view, the use of the mobile Internet through smartphones and the development and use of mobile application features such as social media can create mobile phone dependency (Elhai et al., 2016), and the FOMO relationship suggests that it can also cause nomophobia in individuals.

5. Suggestions

The increasing use of mobile Internet and social networking in Turkey via smartphones is increasing the importance of both earlier and future studies in this field. It is important to expose the causes of

university students' negative experiences (low academic motivation, psycho-social factors, academic achievement, depression, anxiety and fear) due to excessive use of their smartphones with the expectation that this will lead to a solution to the problem.

In addition, future studies should focus especially on which applications in the use of social networking and problematic Internet-based via smartphones affect the FOMO and the Nomophobia (Oberst et al., 2017; Wegmann, Oberst, Stodt & Brand, 2017). Finally, evaluating FOMO and Nomophobia in terms of social network dependence can reveal which one has a higher effect on this negative situation. In this way, future studies will focus on this direction.

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