Nomophobia and smartphone addiction: do the variables age and sex explain this relationship?

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Abstract
This study aimed to identify the extent nomophobia explains smartphone addiction, controlling for age and gender effects. Participants were 316 people from the 22 Brazilian states (*Mage* = 28.1 years), most from Paraíba (38.9%) and Piauí (16.5%), equally distributed between genders. They answered the *Nomophobia Questionnaire*, the *Smartphone Addition Scale* and demographic questions. The results demonstrate that the factors of the nomophobia measure explained smartphone addiction, indicating that more nomophobic behavior equates to increased smartphone addiction, especially in the younger participants, there was no difference regarding gender. These findings are discussed according to the literature on adherence to new technologies, revealing the current problem of smartphone addiction in young people.

Keywords: nomophobia; Internet; smartphone addiction; demographic data.

Nomofobia e Dependência de *Smartphone*: As Variáveis Idade e Sexo Explicam essa Relação?

Resumo
O objetivo deste estudo foi conhecer em que medida a nomofobia explica a dependência de *smartphone*, controlando os efeitos de idade e sexo. Participaram 316 pessoas de 22 estados brasileiros (*Midade* = 28,1), a maioria da Paraíba (38,9%) e do Piauí (16,5%), distribuídas equitativamente entre os sexos. Estas responderam o *Questionário de Nomofobia*, a *Escala de Adição ao Smartphone* e perguntas demográficas. Os resultados foram de que os fatores da medida de nomofobia explicaram a dependência de *smartphone*, indicando que quanto mais as pessoas são nomofóbicas, mais elas dependem de *smartphone*, principalmente aquelas mais jovens, não havendo diferença quanto ao sexo. Esses achados foram discutidos de acordo com a literatura acerca da adesão a novas tecnologias, revelando o problema da dependência de *smartphones* para os jovens nos dias de hoje.

Palavras-chave: nomofobia, dependência de smartphone, internet,dados demográficos

Nomofobia y dependencia de los *smartphones*: ¿las variables edad y sexo explican esta relación?

Resumen
El objetivo de este estudio ha sido conocer en qué medida la nomofobia explica la dependencia de *smartphones*, controlando los efectos de la edad y el sexo. Participaron 316 personas de 22 estados brasileños (*Medad* = 28.1), en su mayoría de Paraíba (38.9%) y Piauí (16.5%), distribuidos equitativamente entre los sexos. Estos respondieron al *Nomophobia Questionnaire*, a la *Smartphone Addition Scale* y a preguntas demográficas. Los resultados demuestran que los factores de la medida de nomofobia explican la adición a los *smartphones*, indicando que un comportamiento más nomofóbico equivale a una mayor adicción a los *smartphones*, especialmente en los más jóvenes, no existiendo diferencias en cuanto al género. Estos hallazgos han sido discutidos de acuerdo con la literatura sobre la adhesión a las nuevas tecnologías, revelando el problema actual de la adicción a los *smartphones* en los jóvenes.

Palabras clave: nomofobia; adicción a los smartphones; Internet; datos demográficos

Introduction

Technology is increasingly present in everyday life, enabling speed in the socialization process, exchange of information or resources and instant communication through tools such as computers, tablets, notebooks and smartphones that, through applications, provide data processing and services (Finotti et al., 2019). According to the National Telecommunications Agency (ANATEL), in February 2020 mobile telephony in Brazil was accessed 226.6 million times.

In the "mobile technology" category, smartphones stand out, providing facilities and different resources, ranging from high-resolution cameras, access to e-mails and social networks (e.g., Facebook, Instagram, Twitter), online research, visualization of films,

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music reproduction and purchases and financial transactions of various kinds (Duke & Montag, 2017). Due to the speed, ease and convenience, the use of smartphones has grown exponentially (Finotti et al., 2019), causing excessive and problematic use, leading to negative long-term consequences, including social (e.g., social isolation, virtual infidelity), physical (e.g., lack of exercise, repetitive strain injuries) and psychological (e.g., anxiety, procrastination) problems (Durak, 2018; Laconi, Tricard, & Chabrol, 2015).

In addition, it has been observed that the excessive use of smartphones is related to problems specific to the 21st century, such as nomophobia (King, Valença, & Nardi, 2010). This contemporary phobia can be defined as smartphone separation anxiety, represented by four dimensions (Han, Kim, & Kim, 2017), namely: (1) not being able to communicate, referring to feelings arising from the loss of instant communication with other people or the impossibility of accessing the services that enable it; (2) losing connectedness, which reflects the feeling of loss of the ubiquitous connectivity provided by smartphones, mainly in relation to social networks; (3) not being able to access information, referring to widespread discomfort, caused by the loss of instant access to information through smartphones; and (4) giving up convenience, that is, the feelings of giving up the coexistence with others, provided by the advantages that the smartphone offers (e.g., having fast and constant access to the internet, social networks and applications, at any time and in any place). When the person with nomophobia is unable to connect to the internet, feelings of discomfort and anxiety usually occur (Yildirim & Correia, 2015).

In this scenario, some characteristics of people who have nomophobia include, being nervous about the idea of losing the smartphone, having more than one device, spending considerable time using it, always carrying a charger to guarantee the ability to recharge the battery, and avoiding places that have no internet signal, among other aspects. These situations have the potential to generate high levels of anxiety (Bragazzi & Del Puente, 2014). In addition, the discomfort and anxiety caused by not having a cell phone can typify nomophobia due to the fear of being out of contact (King et al., 2013).

Despite its negative implications, there is still no consensus on the diagnostic criteria to include nomophobia as a psychiatric disorder in the DSM (Diagnostic and Statistical Manual of Mental Disorders). There are suggestions that it can be considered a specific phobia (Finotti et al., 2019) or that it works as a strong indicator of social disorder or phobia for people who are highly dependent on virtual communication (Han et al., 2017; King et al., 2014), mainly related to high levels of smartphone dependence.

In the DSM-V an appendix on the dependence on online games was incorporated, allowing the inclusion of forms of addiction to the internet and its devices (Bragazzi & Del Puente, 2014). According to Young and De Abreu (2011), the most used model for the diagnosis of addiction, includes six factors: salience, mood swings, abstinence, tolerance, conflict and relapse followed by re-establishment of the condition. Arab and Diez (2014) define addiction as the relationship of a person with a certain activity that causes physical or social harm. This connotation of "addiction" is not linked to the use of substances, but to behavioral aspects (Carbonell, 2018).

Smartphone dependence, however, has similar aspects to psychoactive substance dependence, characterized by tolerance and withdrawal symptoms (MacLaren, 2018), referring to the compulsive need for an element or substance, and if prevented from using it the user will possibly feel unwell and stressed due to not satisfying their desire (Dias, Gonçalvez, Cadime, & Chóliz, 2019). In this case, dependence is manifested through emotional and behavioral changes when individuals are left without a smartphone (Park, 2019).

In the DSM-V, the American Psychiatric Association (APA, 2014) replaced the denominations "abuse" and "dependence" with the diagnostic category "Substance Use Disorder (SUD)", the problematic use, for a period of 12 months, of any psychoactive substance that leads to impairment or clinically significant suffering. Phenomena such as dependency take into account some criteria, ranging from those considered mild, such as craving or strong desire/need to use, to the most severe, with the maintenance of use despite the awareness of having a persistent or recurring physical or psychological problem (Araújo & Laranjeira, 2015).

Therefore, nomophobia differs from dependence, as there are not enough diagnostic criteria to define it as such. However, it can be assumed that, given the relevance of the smartphone and its implications in the daily lives of people, especially adolescents (Finotti et al., 2019), nomophobia could be a predictor of possible addictive behavior related to the smartphone.

For Caplan (2002), dependencies on technology refer to a type of behavioral addiction. The frequent use of smartphones has emerged as a new construction

in the field of studies on behavioral dependency with some characteristics, such as: intolerance (the user dedicates more and more time to their smartphone); loss of control of the use (difficulty in reducing time and frequency of the use of the device); disregard for friends and family; and abstinence (Lopez-Fernandez, 2017). These factors negatively impact the users' physical and mental health (King et al., 2010; Soler, Sánchez, & Soler, 2017) and are often associated with other comorbidities. For example, in the study by King et al. (2010), with people affected by agoraphobia, anxiety symptoms and panic disorders, it was found that 68% of the participants had some degree of smartphone dependence. These people, by avoiding social interaction, attributed feelings of comfort and security to the smartphone. King et al. (2013) showed that smartphone dependence is one of the main consequences of social phobia, as people that suffer from this disorder tend to constantly escape from reality, through excessive use of the computer, and when they cannot access it, they depend on the smartphone to maintain their online relationships.

With regard to the Brazilian context, some studies have highlighted the frequent use of smartphones and its possible implications. According to the Regional Center of Studies for the Development of the Information Society (2018), along with an increase in access to the internet, the percentage of people who report accessing it exclusively through mobile devices has also increased, which highlights the growing use of smartphones in the country. For example, the study by Andrade et al. (2020a), with 15,476 adults from different Brazilian regions, showed that people at high risk of developing problems with internet use are seven to ten times more likely to have severe symptoms of depression, anxiety and stress. A study with 451 Brazilian adolescents identified that 53.2% of the participants demonstrated problematic use of smartphones (Andrade et al., 2020b), which has been negatively associated with psychological well-being (Fores, Broilo, & Lisboa, 2020).

In addition, it is known that the use of smartphones is more frequent among young people, especially adolescents, who are more likely to have behavioral problems related to internet addiction and nomophobia (Wang, Tao, Fan, Gao, & Wei, 2017). Studies have identified this in different countries, and found that the activities performed and the duration of smartphone use may predict nomophobia (Skarupová, Ólafsson, & Blinka, 2016). This was corroborated by Kara, Baytemir and Inceman-Kara (2019), who found that greater daily use of smartphones equated to adolescents feeling more alone, anxious and, therefore, having a higher frequency of nomophobic behaviors, especially when using the internet. The continuous use of the cell phone may also cause sleep disturbances and impairments in school performance (Soler et al., 2017), which can affect other groups, such as university students, causing poor sleep quality and, consequently, anxiety or depression (Demirci, Akgönül, & Akpinar, 2015).

Studies have also been carried out that relate nomophobia and smartphone dependence to sociodemographic variables, such as gender and age. These studies have shown a positive relationship between the variables in question, with women demonstrating higher levels compared to men, even considering different age groups, such as adolescents (Yavuz, Altan, Bayrak, Gündüz, & Bolat, 2018). However, despite the indication that women suffer more from the consequences of using the smartphone, this is still not a consensus, as there is evidence of prevalence among men (Daei, Ashrafi - rizi, & Soleymani, 2019) or that the gender variable is not a predictor of these behaviors (Khilnani, Thaddanee, & Khilnani, 2019). It is also known that the younger the age, the greater the nomophobia and, consequently, smartphone addiction, with adolescents and young adults showing moderate and severe levels of nomophobic behaviors (Al-Balhan, Khabbache, Watfa, Zerbetto, & Bragazzi, 2018). This has been endorsed in studies from different countries, which indicate a negative relationship between age, nomophobic behaviors and smartphone dependence, including Portugal (Dias et al., 2019), Iran (Daei et al., 2019) and Spain (León-Mejía, Calvete, Patino-Alonso, Machimbarrena, & González-Cabrera, 2020).

Given the above, the problems that can be caused by the excessive use of the smartphone in the lives of individuals, whether physical, psychological or social, seem evident, which justifies the importance and need for studies that seek more information on the topic. In addition, it is possible to verify that the few Brazilian studies on the theme have been concentrated mainly in the Southeast region, which highlights the need to investigate the phenomenon in different socioeconomic and cultural contexts, considering the continental dimension of the Brazilian territory. Accordingly, based on what was previously highlighted, the following working hypotheses were elaborated: a) nomophobia factors will be positively associated with smartphone dependence (Durak, 2018; Yang, Lin, Huang, & Chang, 2018); b)

women will present higher levels of nomophobia and dependence on the smartphone compared to men (Andone et al., 2016; Yang et al., 2018) and; c) younger people will have higher levels of nomophobia and smartphone dependence (Daei et al., 2019; Dias et al., 2019; León-Mejía et al., 2020).

In view of the above, this study aimed to verify the predictive power of nomophobia on smartphone dependence, controlling for the effect of sex and age. Specifically, we aimed to verify differences in levels of dependency on the smartphone according to the sex and age of the participants.

Method

Participants

The study used a non-probabilistic sample (by convenience) of 316 people from the general population of 22 Brazilian states (*Mage* = 28.1, *SD* = 9.47 years, ranging from 18 to 62), the majority being from Paraíba (38.9%) and Piauí (16.5%), single (75.9%) and distributed equally between the sexes. These people reported spending a mean of 5.80 hours daily using the smartphone (*SD* = 4.13; 74.7% using from 1 to 7 hours/day). The inclusion criteria of the sample required the respondent to be over 18 years of age, to live in Brazil and to use a smartphone with internet access.

Instruments

The participants answered demographic questions (age, sex, marital status, place of residence and number of hours spent using the smartphone) and completed the following two instruments:

Nomophobia Questionnaire (NQ; Yildirim & Correia, 2015). Adapted to the Brazilian context by Silva et al. (2020), the version employed consists of 18 items answered on a seven-point Likert-type scale, ranging from 1 (Disagree completely) to 7 (Agree completely). These items are divided into four factors. In the present study, the internal consistency coefficients (Cronbach's alpha) were acceptable: *not being able to communicate* (α = .95; e.g., item 10, "*I would feel anxious because I would not be able to communicate instantly with my family and/or friends*" and item 15, "*I would feel anxious because my constant connection with my family and friends would be interrupted*"), *losing connectedness* (α = .89; e.g., item 16, "*I would be nervous because I would be disconnected from my virtual (online) identity*" and item 20," *I would feel uncomfortable and strange because I would not know what to do*"), *not being able to access information* (α = .83; e.g., item 01,"*I would feel uncomfortable, if I didn't have constant access to information via my smartphone*" and item 04,"*I would be upset if I couldn't use my smartphone and/or its features when I felt like it*") and *giving up convenience* (α = .73; e.g., item 05, "*Running out of battery on my smartphone would scare me*" and item 08, "*I would be afraid of being stuck somewhere, if my smartphone didn't work or I couldn't use it*").

Smartphone Addiction Scale (Kwon, Kim, Cho, & Yang, 2013). This reduced version of ten items was adapted to the Brazilian context by Andrade et al. (2020) and assesses a general factor of smartphone dependence (e.g., item 01, "*I stop doing planned tasks or jobs due to the use of my cell phone*" and item 10, "*People around me tell me that I use the cell phone excessively*"). These items are answered on a six-point Likert-type scale, ranging from 1 (Disagree completely) to 6 (Agree completely). In the present study the Cronbach's alpha was .86.

Procedure

Data collection was carried out through the internet, using the Google Docs platform. A link was made available to the research participants, which had previously been posted on social networks (e.g., *Facebook, Instagram*, *Twitter* and *WhatsApp*) or sent by email. The "snowball" technique was used to recruit participants. For those that agreed to participate, the aims of the study were explained and their anonymity and the confidentiality of their participation were guaranteed, explaining that there would be no direct cost or remuneration, and that they could withdraw from the study at any time. All ethical procedures were followed in accordance with CNS Resolutions 466/12 and 510/16. The participants took an average of 10 to 15 minutes to complete the forms.

Data analysis

The data were tabulated and analyzed using the SPSS statistical package (version 26). Descriptive statistics (frequencies, measures of central tendency and dispersion), MANOVA, Pearson's correlations and multiple hierarchical regression analysis were calculated. The aim was to investigate the extent nomophobia could explain smartphone addiction, controlling for the effects of the age and sex variables.

Results

Initially, the means and standard deviations of the factors of nomophobia were calculated, demonstrating a higher score in the factor not being able to access

information (M = 4.63, SD = 1.41), followed by not being able to communicate (M = 4, 13, SD = 1.66), giving up convenience (M = 3.55, SD = 1.56) and, finally, losing connectedness (M = 3.37, SD = 1.58), as presented in Table 1. A MANOVA for interdependent (repeated) measures revealed differences in the scores of these factors [Wilks' lambda = .48, F (3, 313) = 114.01, p <.001; η^2 = 0.52], except between the last two. The mean smartphone addiction score was 2.77 (SD = 1.13), which is below the mean score on the response scale (3.5), t (315) = 11.47, p <.001.

Regarding the relationship between nomophobia and smartphone addiction, Pearson's correlations indicated positive associations for the nomophobia factors with the smartphone addiction score, as follows (p <.001 for all coefficients): *losing connectedness* (r = .70), *communicate* (r = .62), *not being able to access information* (r = .59) and *giving up convenience* (r = .57). Accordingly, higher levels of nomophobia equate to greater levels of smartphone addiction presented by people. These results are described in Table 1.

Subsequently, in order to complement the analyses regarding the association between the variables in question, we sought to verify the extent the factors of nomophobia explained smartphone addiction, controlling for the effects of the age and sex variables (1 = Male, 0 = Female). For this, hierarchical multiple linear regression analysis was performed, introducing smartphone addiction as the criterion variable; the demographic variables age and sex were entered in the first step, while the nomophobia factors were introduced in the second step. The demographic variables explained approximately 9% of the variance in smartphone addiction [R = .30, R^2_{Adjusted} = .09; F (2, 304) = 15.40, p <.001]; the inclusion of the nomophobia factors raised the explanation for this addiction to 57% [R = .76, R^2_{Adjusted} = .57; F (4, 300) = 85.42, p <.001].

Finally, regarding each particular variable, among the demographic variables, age was the only one that contributed (β = -.30, t = 5.50, p <.001), with the contribution of sex not being significant (β = .07, t = 1.38, p >.05)-.09, t = 1.57, p >.05). Considering the nomophobia factors, when the effect of the demographic variables was controlled, only *not being able to access information* did not significantly contribute to smartphone addiction (β = .07, t = 1.38, p >.05), with the others contributing to their explanation: *losing connectedness* (β = .38, t = 6.14, p <.001), *not being able to communicate* (β = .20, t = 3.29, p <.01) and *giving up convenience* (β = .14, t = 2.74, p <.01). These results are described in Table 2.

Discussion

This study aimed to verify the explanation of nomophobia, controlling for the effect of age and sex, on smartphone addiction. Specifically, the aim was to identify the relationship between the factors of the two constructs mentioned above, in addition to verifying differences in the levels of dependence regarding the sex and age of the participants. It is believed that the aims were achieved, as the results indicate that nomophobia can explain smartphone addiction, especially in younger people, which reinforces the idea that the problematic and excessive use of technology can have negative effects on people's lives (Gezgin & Çakir, 2016).

Initially, the prevalence of the types of nomophobia in the sample considered was investigated, with the factor *not being able to access information* being most prevalent, followed by *not being able to communicate*, *giving up convenience* and *losing connectedness*. Subsequently, it was found that the nomophobia factors were positively related to levels of smartphone addiction. This result corroborates previous studies (Durak, 2018; Yang, Lin,

Table 1.
Correlations between the nomophobia factors and smartphone addiction

Factors	M	SD	1	2	3	4	5
1. Not being able to access information	4.63	1.41	-				
2. Not being able to communicate	4.13	1.66	0.62**	-			
3. Giving up convenience	3.55	1.56	0.53**	0.66**	-		
4. Losing connectedness	3.37	1.58	0.64**	0.74**	0.65**	-	
5. Smartphone addiction	2.77	1.13	0.56**	0.65**	0.59**	0.71**	-

Note. M = mean; *SD* = standard deviation; ***p* <.001.

Table 2.
Hierarchical regression analysis of predictors of smartphone addiction

Variables	B	SD	β	Model
Step 1				
Age	-.04	0.22	-.30**	$F(2; 304) = 15.40$
Sex[a]	.20	0.01	-.09	$R^2 = .09$
Step 2				
Age	-.02	0.01	-.16**	
Sex[a]	-.04	0.09	-.02	$F(6;300) = 85.42$**
Not being able to access information	.06	0.04	.07	$R^2 = .57$
Giving up convenience	.10	0.04	.14**	$\Delta R^2 = .48$
Not being able to communicate	.14	0.04	.20**	
Losing connectedness	.26	0.04	.38**	

Note. $^{**}p < .001$; *SD* = standard deviation; [a]Male = 1, Female = 0.

Huang, & Chang, 2018), even in different contexts and age groups, such as Portuguese adolescents and young people (Dias et al., 2019); and Iranian university students (Daei et al., 2019). These results show that people that have nomophobic behaviors are more likely to present smartphone dependence.

Subsequently, it was verified whether the variables in question could be explained by sex and age. In the present study the gender variable did not explain nomophobia and smartphone addiction, corroborating results previously found. For example, in a study by Dixit et al. (2010), in India, no differences were found in terms of sex and nomophobia levels in student, results later corroborated in a study with Saudi university students (Alosaimi, Alyahya, Alshahwan, Mahyijari, & Shaik, 2016), students from northern India (Bartwal & Nath, 2019) and people of the Turkish general population (Gurbuz & Ozkam, 2019).

Despite these results, there is still no consensus in the literature, as some studies have indicated the prevalence of nomophobia among women, with them using smartphones excessively and sex significantly predicting nomophobia (Andone et al., 2016; Yang et al., 2018), while others indicate a higher prevalence among men (Daei et al., 2019), or that there are no differences due to sex (Khilnani et al., 2019), the latter corroborating the results of the present study. Accordingly, the findings reported here require further study to better explain the effects of sex on the variables in question, as emphasized by Güzeller and Cosguner (2012).

Regarding age, the present study showed that younger age equated to higher levels of nomophobia and, consequently, increased smartphone addiction. This data is similar to other studies, in different contexts, such as Portugal (Dias et al., 2019), Iran (Daei et al., 2019) and Spain (León-Mejía et al., 2020). According to Argumosa-Villar, Boada-Grau and Vigil-Colet (2017), nomophobia is more frequent in adolescents than in other age groups, as this group uses the smartphone more intensively to maintain their social interactions. In addition, as age advances there is an increase in the self-regulatory capacity and in the control of smartphone use (Andone et al., 2016).

Finally, when considering only the nomophobia factors, although the factor *not being able to access information* did not contribute significantly to the explanation of smartphone addiction, the other nomophobia factors were strong predictors of smartphone addiction, as shown in previous studies (Kara et al., 2019; Skarupová, et al., 2016). These results suggest the need to design intervention programs based on specific factors of nomophobia to deal with smartphone dependence, especially in younger people.

Considering the above, it is clear that studies have diverged regarding results related to sex and age, which suggests that more research is needed to ascertain the relationship between nomophobia and smartphone dependence in different cultural, economic and social contexts. Therefore, the innovation of this study for Brazilian scientific research stands out, being the first national study to investigate the relationship between nomophobic behaviors and smartphone addiction. This study shows the close relationship between nomophobia and the daily use of cell phones (Daei et al.,

2019; Kara et al., 2019; Skarupová et al., 2016), defining nomophobic people as individuals that show considerably higher addiction results (Soler et al., 2017).

Final considerations

In summary, the results of the present study corroborate what has been evidenced in the literature, since the study showed positive relationships between all factors of nomophobia and smartphone addiction, demonstrating age as a significant predictor of this relationship, unlike sex. Although the aims were achieved, some limitations need to be highlighted, such as: a) the size and use of a non-probabilistic convenience sample, with the majority from two northeastern states (Paraíba and Piauí), a fact that limits the generalization of results (Andrade et al., 2020a); b) the cross-sectional design of the study that does not allow causal relationships between the variables to be verified; c) the measures used being self-reported, which favors social desirability, with the content of the items possibly acting as an agent for altering responses, especially when the respondent seeks personal promotion (Gouveia, Guerra, Souza, Santos, & Costa, 2009), causing people to distort their answers, misrepresenting the social reality (Kohlsdorf & Costa Junior, 2009) and; d) the statistical analyses carried out, which did not allow the influence of nomophobia on smartphone addiction to be investigated, since only experimental studies allow this inference.

New studies are suggested with larger and more diverse samples, for example, including various age groups (e.g., children, adolescents and older adults), since age has proved to be an important predictor of these behaviors, especially in adolescents and young adults (Al-Balhan et al., 2018), and people from different states and cultures, in order to better investigate the relationship between the variables studied. Considering the results found in the present study and the literature cited to support the themes, it is possible to identify nomophobia as an emerging behavioral problem that needs attention.

Promoting awareness of the harmful effects of the smartphone is necessary (Bartwal & Nath, 2019), seeking more robust findings that can clarify the relationship between sex, age and other factors in the behaviors of nomophobia and smartphone addiction. For this, preventive and educational strategies should be implemented at school and in the family, especially with regard to adolescents, the population most susceptible to the consequences of the harmful use of the internet and its devices.

Recent studies have shown the association between nomophobia and different demographic variables, such as the educational level of the parents, family income and geographic area (urban or rural) (Durak, 2018). In addition, future studies may consider other factors that could help to better comprehend the variables, in relation to both nomophobia and smartphone addiction, such as sleep quality, anxiety, depression and daily cell phone use (Demirci et al., 2017; Rosen et al., 2016; Wang et al., 2017). Furthermore, it would be equally interesting to address topics such as loneliness, personality, human values, parenting styles, life satisfaction and self-esteem, for example, to better understand nomophobic behaviors, possible smartphone addiction, and the consequences in the lives of users. This would contribute to scientific research in this area, support clinical professionals (psychologists, psychopedagogists and physicians), and assist in the creation of interventional programs aimed at raising awareness, reducing or even avoiding the abusive use of technological devices and their negative consequences in the personal, family, love and professional relationships of individuals.

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