# Adolescents's problematic mobile phone use, fear of missing out and family communication

## Uso problemático del móvil, fobia a sentirse excluido y comunicación familiar de los adolescentes

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## Abstract
This research analyzes the problematic use of mobile phone, the phenomenon of fear of missing Out (FoMO) and the communication between parents and children in students who attend secondary education in public and private centers of the regions of Canary Islands, Balearic Islands and Valencia. The research involved 569 students aged between 12 and 19 years. The instruments used were the «Mobil phone related experiences questionnaire», the Spanish adaptation of the «Fear of missing out questionnaire» and the communication dimension with parents of the «Parents and peers attachment inventory». The results show that: 1) An increased problematic use of the mobile phone is associated with a higher level of FoMO; 2) The students who frequently use the mobile phone and communicate more with their friends have a higher average score in the «Mobile phone related experiences questionnaire» and in the «Fear of missing out questionnaire»; 3) The students that use the mobile phone for less time has a greater communication with fathers and mothers. We discuss the relevance of the study of FoMO and parents-children communication as factors that affect the problematic use of mobile phone in young people. Centers' guidance teams, families and teachers have to create a common learning space to promote the responsible use of mobile phone.

## Resumen
Este estudio analiza el uso problemático del móvil, el fenómeno de «Fear of missing out» (FoMO: temor de perderse experiencias) y la comunicación entre padres e hijos/as en el alumnado que cursa educación secundaria en centros públicos y concertados de las Comunidades Autónomas de Canarias, Baleares y Valencia. En la investigación participaron 569 alumnos y alumnas con edades comprendidas entre 12 y 19 años. Los instrumentos utilizados fueron el Cuestionario de experiencias relacionadas con el móvil (CERM), la adaptación española del Cuestionario «Fear of Missing Out» (FoMO-E) y la dimensión de comunicación con padres y madres del «Inventario de apego con padres y rares». Los resultados muestran que: 1) A mayor uso problemático del móvil mayor nivel de FoMO; 2) El alumnado que usa con frecuencia el móvil y se

comunica más con sus amigos tiene una puntuación media más alta en el «Cuestionario de experiencias relacionadas con el móvil» y en el «Cuestionario FoMO-E»; 3) El alumnado que usa menos horas el móvil tiene una mayor comunicación parento-filial. En el artículo se discute la relevancia del estudio del FoMO y de la comunicación parento-filial como factores que inciden en el uso problemático del móvil en los jóvenes. Las familias, el profesorado y los equipos de orientación en los centros han de crear un espacio de aprendizaje común para fomentar el uso responsable del móvil.

## Keywords / Palabras clave

Adolescence, mobile phone, critical consumption, family communication, psychological well-being, parental behavior, FoMO, risk factors.
Adolescencia, móvil, consumo crítico, comunicación familiar, bienestar psicológico, control parental, FoMO, factores de riesgo.

## 1. Introduction

Information and communication technologies (ICT) are creating new communication environments (Malo-Cerrato, 2006, Arab & Díaz, 2015). In Spain, the use of ICT among children between 10 to 15 years of age is widespread (92.4%) (INE, 2017). The young people of the «Generation Z,» the first generation born in the 21st century, are characterized by incorporating ICT during their learning/socialization period (Urosa, 2015) and are integrating them at an early age in their daily life (García & Monferrer, 2009).

The use of technology has grown notably in Spanish households: 81.9% had access to the Internet in 2016; this percentage rose to 83.4% in 2017 (National Institute of Statistics (2016, 2017).) The main type of Internet connection is via the mobile phone. 97.4% of households have at least one. The use of technological devices and the place they occupy in the home generates new forms of relationship between the members of the family (Torrecillas-Lacave, Vázquez-Barrio, & Monteagudo-Barandalla, 2017).

The aim of our work is to analyze the problematic use of the mobile phone, the Fear of Missing Out (FoMO) and the parent-child communication in students between 12 and 19 years old. It specifically aims to: a) determine whether there are statistically significant relationships between these variables; b) determine whether there are significant differences in these variables according to sex, age, the frequency of use of the mobile phone, and the type of people whom students communicate most with using the mobile phone.

### 1.1. Problematic use of the mobile phone

The use of the mobile phone has instrumental and symbolic functions for young people. The mobile phone is a multipurpose tool for communication, expression, leisure, and information (Chóliz, Villanueva, & Chóliz, 2009); it also has a symbolic dimension formed of appearance, prestige, and autonomy. The mobile phone facilitates the possibility of appropriately managing social relations and groups the user belongs to (such as family, peer, or political groups) in real time (García & Monferrer, 2009). On its own, the mobile phone is not harmful, and its proper use can have beneficial effects: it favors children's development, offers wide possibilities of access to information and enhances learning; it also provides the possibility of parental supervision (Bartau-Rojas, Airbe-Barandiaran, & Oregui-González, 2018). An emerging indicator of the problematic use of the mobile phone is when it is consulted excessively; this generates feelings of insecurity, irritation, evasion, isolation (Beranuy, Oberst, Carbonell, & Chamarro, 2009), states of anxiety and depression, and obsessive-compulsive tendencies (Przybylski, Murayama, DeHaan, & Gladwell, 2013; Roberts, Pullig, & Manolis, 2015). It can also cause problems at school and juvenile delinquency (Lei & Wu, 2007). In short, its misuse has psychophysiological, affective and relational consequences, and it deteriorates personal relationships and communication with the immediate environment (Seo, Park, Kim, & Park, 2016).

Adolescents are the most vulnerable group in the problematic use of mobile phones (Gil, del-Valle, Oberst, & Chamarro, 2015, Przybylski & al., 2013); from their earliest childhood they are exposed to ICT, and they use them without specific training (Berríos, Buxarrais, & Garcés, 2015). Regarding the differences between sexes, girls use their mobile phones more to cope with anxious moods, overcome boredom or not feel alone, and make a greater number of mobile phone consultations compared to boys (Chóliz & al., 2009). Boys use the mobile phone for commercial reasons, coordination and entertainment tasks (Beranuy & al., 2009), they have a higher degree of "fear of not feeling connected" (Dossey, 2014), and more difficulties to stop using it excessively (De- la-Villa-Moral, & Suárez, 2016).

## 1.2. Fear of missing out (FoMO)

Przybylski & al. (2013) conducted the first scientific research to operationalize the FoMO concept, and they designed the first self-report instrument to measure the phenomenon; these authors define the construct as "the generalized perception that others may be experiencing rewarding experiences of which one is absent" (Przybylski, & al., 2013: 1841). FoMO can happen with or without a mobile phone, but it has been associated with the use of mobile phones given the possibilities they provide for an unlimited connection.

FoMO is explained from the theory of self-determination (Ryan, & Deci, 2000); according to this theory it is understood as a self-regulating limbo derived from situational or chronic deficits in the satisfaction of psychological needs such as the need to act effectively in the world, have personal initiative and have relationships with others (Riordan, Flett, Hunter, Scarf, & Conner, 2015). People with unmet psychological needs have a high level of FoMO. This can increase in adolescents since they face significant challenges and obstacles to form their identity and gain their autonomy.

Various investigations link FoMO with the use of the mobile phone. In the study by Alt (2015), a relationship was found between FoMO, the problematic use of social networks on the mobile phone and academic motivation. Adolescents with the greatest need to be popular on social networks experience FoMO more than those who do not have that need (Beyens, Frison, & Eggermont, 2016); FoMO encourages people to connect to social networks and increases the fear in adolescents of not feeling connected or of missing out on experiences in their social environment (Elhai, Levine, Dvrorak, & Hall, 2016).

Oberst, Wegmann, Stodt, Brand, and Chamarro (2017) reported that people with anxiety experience FoMO and improperly use social networks on the mobile phone. This happens because young people expect the use of social networks to increase their positive emotions and eliminate or attenuate their negative emotions. However, the relief of such emotions is momentary, and the feeling of discomfort increases in the long term.

## 1.3. Communication between parents and children

The family is the first social group where children interact. Through communication, the family knows and negotiates the spaces of daily life, conveys the beliefs, customs and lifestyles of each household (Rodrigo & Palacios, 2014). Family communication is a determining factor in developing attachment between children and their parents or caregivers. Attachment is defined by Armsden and Greenberg (1987) as a meaningful and lasting affective bond with a father, mother or a close peer; it is characterized by good communication, emotional closeness, and trust. Attachment is negatively related to depression and aggression (Lei & Wu, 2007). The development and strength of attachments begin in childhood and depend on physical proximity. As children grow up, physical proximity is less important, and attachment can be sustained through communication tools such as the mobile phone (instant messaging, social networks) (Lepp, Li, & Barkley, 2016). Communication is an essential element in the development of attachment in adolescence.

The incursion of ICT in society generates new dynamics in family communication in a positive and negative way. Carvalho, Francisco, and Relvas (2015) point out how ICT can change family

dynamics in a positive way. For example, the possibility of communication in real time and at low cost, despite the geographical distance of the members of the family unit (Subject, verb). Quality communication between adolescents and their parents correlates negatively with the degree of Internet addictions (Liu, Fang, Deng, & Zhang, 2012). According to Davis (2001), ICT can have adverse effects on communication as they affect the quality of family relationships; this negative impact can be defined explicitly in the verbal and non-verbal disconnection that can produce misunderstandings and distancing. Therefore, it is necessary to study the positive and negative impact of ICT on family communication.

## 2. Method

### 2.1. Participants

A total of 569 students from three secondary schools in Mallorca (N = 425), Valencia (N = 70) and Tenerife (N = 74) participated in the research. These centers decided to participate in the study for two reasons: a) their interest in raising awareness among their students about the problems generated by the inappropriate use of mobile phones, and b) their desire to promote responsible use of the mobile phone. The centers in Mallorca and Valencia are privately owned but receive state funding, and the one in Tenerife was a state school. The distribution according to sex was 61.1% female and 38.8% male. The age range was from 12 to 19 years of age (Mean = 14.6, SD = 1.87); 49% were between the ages of 12 and 14, and 51% between 15 and 19 years old. The distribution according to school year was: 33% were in 1st and 2nd year of Compulsory Secondary Education (CSE), 28% 3rd and 4th year of CSE and 38% in 1st and 2nd year of Upper Secondary Education.

### 2.2. Instruments

A questionnaire was used in the study that collected information about personal characteristics, the problematic use of the mobile phone, FoMO and parent-child communication. The problematic use of mobile phones was analyzed by means of the Mobile Related Experiences Questionnaire (MREQ) designed by Beranuy, Chamarro, Graner, and Carbonell (2009). This questionnaire was developed from the Internet Related Experiences Questionnaire (Gracia, Vigo, Fernández, & Marcó, 2002). The MREQ has 10 items with 4 response alternatives, which range from 1 (almost never) to 4 (almost always). The items are grouped into two factors: the "conflicts" factor has five items, while the other five are grouped into the "communicational and emotional use" factor. Beranuy, Chamarro, Graner, and Carbonell (2009) point out that the internal consistency of the first and second factors, applying the Cronbach α coefficient, was 0.81 and 0.79, respectively. The internal consistency index of the MREQ was 0.80.

FoMO was analyzed using the Spanish adaptation of the Fear of Missing out questionnaire (FoMO-S) of Przybylski & al. (2013) prepared by Gil & al. (2015). This instrument examines the fears and concerns that the individual may experience when they are out of touch with the experiences of their social environment. The FoMO-S has 10 items with five response alternatives, ranging from 1 (nothing) to 5 (a lot). Gil & al. (2015) point out that the internal consistency index of FoMO-S, applying the Cronbach α coefficient, was 0.85.

Parent-child communication was analyzed with the Spanish version of the Parent and Peer Attachment Inventory (PPAI) of Gallarin and Alonso-Arbiol (2013). This instrument was designed from the scale of Armsden and Greenberg (1987), and it examines three dimensions: Trust, Communication, and Alienation concerning fathers, mothers, and peers. The study analyzed the second dimension in which the amplitude and quality of the communication that children have with their fathers (PPAI-F) and mothers (PPAI-M) are examined. PPAI-F and IPPAI-M have 9 items, with 5 response alternatives, from 1 (almost never or never) to 5 (almost always or always). Gallarin and Alonso-Arbiol (2013) point out that the internal consistency index of PPAI-F, applying the Cronbach α coefficient, was 0.88, and the internal consistency index of PPAI-M was 0.87

## 2.3. Procedure

The management teams of the centers approved the development of the investigation. The students and the family were informed about the nature of the study to obtain their consent. Meetings were held with the teaching staff of the centers to explain the purpose of the study as well as to specify the dates to do the questionnaires. The three instruments were applied in the classrooms by one of the researchers during school hours.

## 2.4. Data analysis

The data analysis was performed with the SPSS21 statistical program and included the analysis of the descriptive statistics for each of the variables studied, reliability coefficient, Pearson correlation coefficient, analysis of variance, contrasts of means for independent groups and effect size (Cohen's d and Eta squared).

## 3. Results

### 3.1. Statistics of the analyzed variables

The MREQ, FoMO-S, PPAI-M and PPAI-F statistics are shown in Table 1. The distribution of MREQ and FoMO-S scores has positive asymmetry indexes. Based on the clusters identified by Carbonell & al. (2012) starting from the MREQ scores, our research found that 52% of students "have no problems" with the use of mobile phones, 46% have "occasional problems," and 2% have "frequent problems." The distribution of participants' scores has a negative asymmetry in both the PPAI-M and the PPAI-F. In both cases, the students have high scores in the quality of communication with their parents.

| Table 1. Mean, standard deviation, asymmetry and Crombach's α of the MREQ, FoMO-E, PPAI-M and PPAI-F scores | | | | | |
|---|---|---|---|---|---|
| Scale | Score. Min. / Max. | Mean | Standard deviation | Asymmetry | Cronbach's α |
| MREQ | 10-40 | 15,4 | 2,9 | 0,40 | 0.75 |
| FoMO-S | 10-50 | 20,7 | 5,8 | 0,52 | 0.80 |
| PPAI-M | 9-45 | 33,5 | 7,3 | -0,74 | 0.83 |
| PPAI-F | 9-45 | 30,5 | 7,6 | -0,41 | 0.85 |

A positive correlation was observed between the MREQ and FoMO-E scores ($r = 0.53$, $p < .005$); students who have a more problematic use of the mobile phone tend to have a higher degree of FoMO. Likewise, a positive correlation was observed ($r = 0.55$, $p < .005$) between the PPAI-M and PPAI-F scores; students with a higher quality of communication with their mothers tend to have a higher quality of communication with their fathers.

### 3.2. Problematic use of the mobile phone

There are significant differences between the mean scores in the MREQ according to age: the group of 15-19-year-olds has a significantly higher mean average score than the group of 12-14-year-olds. In other words, the eldest one is the more problematic is the use of the mobile phone. However, the effect size is low.

| Table 2. MREQ: T-Test and Anova according to age, frequency of mobile phone use and people whom the students communicate with most | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Scale** | **Age** | | **Frequency of mobile phone use -hours/day-** | | | **People whom students communicate with most by mobile phone** | | |
| MREQ | 12-14 | 15-19 | 0-2 | 2-4 | >4 | Friends | Fam. | Friends Fam. |
| | 14.9 | 15.8 | 13.1 | 15.7 | 17.2 | 15,7 | 14,1 | 14,1 |
| | $T_{(567)}=-3.6*$ | | $F_{(2.557)}=66.2*$ | | | $F_{(2.566)}=13.91*$ | | |
| | Cohen's d = 0.3 | | Eta-squared=0.1 | | | Eta-squared =0.06 | | |

*p<.05

The analysis of variance showed significant differences between the mean average scores in the MREQ according to the frequency of use of the mobile phone: the group of students using the mobile phone for more than 4 hours has a significantly higher mean average score than the other two groups. In other words, the greater the number of hours on the mobile phone, the higher the problematic use of it. The effect size is moderate.

Finally, the analysis of variance showed significant differences between the mean average scores in the MREQ according to the people whom the students communicate with most by mobile phone: those who communicate more with friends have a significantly higher mean average score than those who communicate more with their parents. In other words, they have more problems with the use of the mobile phone. However, the effect size is low. No significant differences were observed between the mean scores of the QMRE according to sex.

## 3.3. Fear of missing out

The analysis of variance revealed significant differences between the mean average scores in the FoMO-E as a function of the frequency of use of the mobile phone: the students who use the mobile phone for more than four hours have a significantly higher mean average score than the rest of the students. In other words, they are more afraid of not feeling connected. The effect size is high.

| Table 3. FoMO-S: T-Test and Anova according to frequency of mobile phone use and people whom the students communicate with most | | | | | | |
|---|---|---|---|---|---|---|
| **Scale** | **Frequency of mobile phone use (hours/day)** | | | **People whom the students communicate most with on the mobile phone** | | |
| FoMO-E | 0-2 | 2-4 | >4 | Friends | Fam. | Friends Fam. |
| | 18.5 | 21 | 22.5 | 21 | 19.3 | 19.7 |
| | $F_{(2.557)}= 13.95*$ | | | $F_{(2,566)}=3,59*$ | | |
| | Eta-squared=0,48 | | | Eta-squared=0.14 | | |

*p<.05

The analysis of variance showed significant differences between the mean average scores in the FoMO-E according to the people whom the students communicate with most by means of the mobile phone: the group of those who communicate more with the friends has a mean average score significantly higher than the group that communicates more with parents. This means that students who communicate more with friends are more afraid of not feeling connected to them. The effect size is moderate. No significant differences were observed between the mean FoMO-E scores according to sex and age.

## 3.4. Mothers-children communication

There are significant differences between the mean average PPAI-M scores according to gender: female students have a higher score in the quality of communication with the mother, compared to male students. However, the effect size is low.

The contrast of means showed significant differences in PPAI-M according to age: the group of 12-14-year-olds has a significantly higher mean score than the group of 15-19-year-olds. The older they are, the lower the quality of communication with the mother; however, the effect size low.

| Table 4. PPAI-M: T-Test and Anova according to sex, age, and frequency of mobile phone use | | | | | | |
|---|---|---|---|---|---|---|
| Scale | Sex | | Age | | Frequency of mobile phone use (hours/day) | | |
| PPAI-M | F | M | 12-14 | 15-19 | 0-2 | 2-4 | >4 |
| | 34.5 | 31.9 | 34.3 | 32.7 | 34.6 | 33.8 | 30.3 |
| | T(567)=4.1* | | T(567)= 2.6* | | F(2,557)= 9.8* | | |
| | Cohen's d= 0.3 | | Cohen's d= 0.2 | | Eta-squared= 0.03 | | |

*p<.05

The analysis of variance showed significant differences between the mean average PPAI-M scores according to the frequency of mobile phone use: the group of students who use the mobile phone for 0 to 2 hours has a significantly higher mean average score than those in the groups that use it for more time. In other words, the lower the use of the mobile phone the more communication there is with the mother. However, the effect size is low. No significant differences were observed between the mean average scores of the PPAI-M according to the people whom the students communicate with more on the mobile phone.

## 3.5. Fathers-children communication

The contrast of means for independent groups showed significant differences between the mean average PPAI-F scores according to age: the group of 12-14-year-olds has a significantly higher mean average score than the group of 15-19-year-olds. The older you are, the lower the quality of communication with the father is; however, the effect size is low.

| Table 5. PPAI-F: T-Test and Anova according to age and frequency of mobile phone use | | | | | |
|---|---|---|---|---|---|
| Scale | Age | | Frequency of mobile phone use (hours/day) | | |
| PPAI-F | 12-14 | 15-19 | 0-2 | 2-4 | >4 |
| | 31.8 | 29.3 | 32.4 | 30.5 | 25.3 |
| | T(567)= 3.9* | | F(2.557)= 10* | | |
| | Cohen's d = 0.3 | | Eta-squared =0.03 | | |

*p<.05

The analysis of variance showed significant differences between the average scores of the PPAIF. According to the frequency of the mobile phone use: the group of students who use the mobile phone for 0 to 2 hours has a significantly higher mean average score than the groups that use it for more time; in other words, the lower the use of the mobile phone the more communication there is with the father. However, the effect size is low. No significant differences were observed between the mean average PPAI-F scores according to the sex and the people whom the students communicated with most by mobile phone.

# 4. Discussion and conclusions

The aim of our research was to analyze the problematic use of the mobile phone, FoMO, and communication between parents and children in Secondary Education students.

a) Regarding the problematic use of the mobile phone, 46% of students had "occasional problems" and 2% "frequent problems." The results found do not agree with those of the study by Carbonell et al. (2012), where only 16% of adolescents expressed "occasional problems" and 2% "frequent problems." Our results also show that the use of the mobile phone is increasing in the age range of 15-19 years of age. This coincides with the results of other studies (de-la-Villa & al., 2016; Cruces, Guil, Sánchez, & Pereira, 2016): the problems with the mobile phone use increase during adolescence compared to its use in preadolescence, and they decrease in young adults. In the adolescence stage, the mobile phone becomes an instrumental and symbolic tool that allows young people to interact with peers, look for autonomy, obtain recognition and externalize their identity (Chóliz & al., 2009). Our research shows that when students use their mobile phone for more than two hours a day, there is a greater chance that there will be a problematic use of it, compared to those who use it for less than two hours. In addition, those who communicated more with their friends tended to use the mobile phone problematically. These results are in line with those obtained by Cruz and others (2016), who reported that the problematic use of mobile phones increases when the number of hours of use per week increases.

b) Regarding the Fear of Missing Out, we observed that the degree of FoMO among students is greater as the frequency of the mobile phone use increases. At the same time, the students with FoMO tend to connect more frequently to the mobile phone because they feel more fear of not being connected, and of missing out on the experiences that this medium offers them; thus, a vicious circle is generated from which it is not easy to escape (Beyens & al., 2016; Elhai & al., 2016). As for the relationship between FoMO and the preference to communicate via mobile phone with friends or family, it was found that students with a higher degree of FoMO tend to communicate more with friends. This could be explained by the stage of the life cycle they are going through: in adolescence, connection with and recognition of peers is sought (Rodrigo & Palacios, 2014); it is a stage in which one feels the need to belong to the group and the desire to be socially connected (Gil & al., 2015). FoMO can lead to an increase in the frequency of peer-to-peer communication, which can lead to more problematic use of the mobile phone.

c) With respect to the communication between parents and children, the results showed significant differences between sexes: girls communicated more with their mothers than boys. These results are consistent with the research of Alvarado-de-Rattia (2013) in preadolescents and Spanish adolescents. According to Sánchez-Queija and Oliva (2003), the type of affective bond established in childhood with parents is related to sex. A bond of secure attachment is more frequent in women. It is characterized by a high degree of affection and communication, both with the father and with the mother. On the other hand, the link between the type of cold control and low level of affection with the mother is more frequent among boys. The students who say that they have a better quality of communication with their mother and father spend less time on their mobile phones. As regards to age differences, it was found that 12-14-year-old students communicated more with their parents. There is a transition from childhood to adolescence in this period, which is why the reference figures of their parents are very important (Lei & Wu, 2007); even minors are aware of the importance of their parents as regulators of Internet content. However, this influence decreases as children grow up in favor of their friends and colleagues (Sánchez-Valle, de-Frutos-Torres, & Vázquez-Barrio, 2017). Malo-Cerrato, Martín-Perpiñá, and Viñas-Poch (2018) point out the contagious effect that families can exercise in the use of new technologies; adolescents who use ICT excessively perceive that their mothers and siblings also use them intensively, which shows the family influence regarding the use of ICT. Older students acquire more skills in the use of interactive media, which generates less dependence on parents; in turn, parents feel less able to regulate the use of such means in their sons and daughters (Bartau-Rojas, Aierbe-Barandiaran, & Oregui-González, 2018).

d) As for the relationship between the problematic use of the mobile phone and the fear of missing out on experiences, a positive and significant relationship was observed between both variables. This result coincides with those reported in the study by Fuster, Chamarro, and Oberst (2017) and Gil & al. (2015). The fear of not feeling connected is caused by the dissatisfaction of psychological needs (Riordan, Flett, Hunter, Scarf, & Conner, 2015), and is a mediating factor in the use of the mobile phone (Carbonell et al., 2012). In the study by Oberst et al. (2017), it was observed, using a structural equation model, that FoMO is the mediating factor between depression, anxiety and the increase in the problematic use of the mobile phone.

e) A positive and significant relationship was also observed in the level of communication between fathers and children and the level of communication between mothers and children. Although students prefer to communicate more with their friends, communication with their parents is still important as it is an essential part of attachment in family dynamics (Armsden, & Greenberg, 1987). In line with what was reported by Lepp, Li, and Barkley (2016) as children grow up, physical proximity is less important for attachment bonds; communication tools such as the mobile phone can help maintain these attachment bonds.

In conclusion, our research shows an increase in the problematic use of mobile phones among secondary school students. The higher the use of the mobile phone, the greater the degree of FoMO; the adolescents' fear of missing out on their experiences reinforces their desire to use their mobile phones more frequently to feel connected and satisfy unmet psychological needs, which in turn impels them to use mobile phones in a problematic way. In adolescence, parent-child communication is still important. The mobile phone can be a tool to maintain communication and attachment. The regulated use of the mobile phone denotes appropriate parent-children communication. Technological devices such as the mobile phone should be studied as instruments that enhance family relationships.

The training of young people in the proper use of new technologies must be the work of parents, teachers, and counselors. We must count on them to create a common learning space about the problems generated by the misuse of mobile phones and the need to use them responsibly. The Educational and Psycho-pedagogical Guidance Teams in the preschool and primary education stage and the Guidance Departments in the secondary education stage must include specific work units in their Tutorial Action Plans that train the students in the appropriate use of technological artifacts (Santana, 2013; 2015). These units must be connected to the different subjects in the curriculum in order to work on such a relevant topic from an interdisciplinary and experiential approach.

One of the limitations of the study is the small number of participants in the sample. It is necessary to conduct new studies with a larger number of participants from different regions in Spain to confirm the results of the research. In addition, as this is a correlation study, its results are limited to establishing a relationship between variables, though not a causality between them. In future research, it would be necessary to analyze the causes of the problematic use of the mobile phone. In our work, we hypothesize that this problematic use may be mediated by the FoMO syndrome and by the anxiety it causes, as well as by the quality of parent-child communication. It would also be interesting to know whether the type of attachment developed by the children towards their parents and peers is related to the way they use mobile phones since new prevention and intervention guidelines could be given in this field. Likewise, it would be necessary to perform new studies with in-depth interviews that allow us to delve into the worldview of these groups, especially concerning the contents seen on the mobile phone and the social moments/contexts when they are used.

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