

# Smartphone Dependency and its Relationship with the Meaning of Life, Psychological Well-Being and Self-Regulation in a Sample of University Students

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## Abstract

The problematic use of smartphones is increasingly common in the population; it is necessary to investigate both the associated factors and the relationship that this situation could have with relevant aspects such as the sense of life and subjective well-being. The objective of this study was oriented to identify the presence of smartphone dependence in a sample of university students in Colombia, Cuba and Mexico and its possible association with the meaning of life, psychological well-being and self-regulation. It was the quantitative study with descriptive-correlational level and cross-sectional design, with the sample of 276 university students from these three countries, with the average age of M 23.5 (Dt 6.7), distributed in the range between 17 and 60 years. The Brief Mobile Phone Dependence Test, the Argentine adaptation of the meaning in life test and the Spanish adaptation of the scales of psychological well-being of Ryff were used. The results of study indicate a trend towards problematic cell phone use in the study sample, related to certain difficulties in commitment to the meaning of life and deficiencies at the level of self-regulation, especially at younger ages. Problematic smartphone use was associated with less sense of life, psychological well-being and self-regulation. As a main conclusion, the healthy use of technology is a priority goal for the education of young people, which requires delaying the age of initiation in the possession of cell phones and tablets, promotion of critical-reflective thinking skills, self-regulation and cognitive, executive, and metacognitive skills.

**Keywords:** Smartphone Dependence, Meaning of Life, Subjective Well-being, Self-regulation.

## INTRODUCTION

Currently, the mobile phone represents one of the most used devices, since 68% of the world's population has a cell phone. As for Colombia, there are on average 65.75 million active cell phones, which indicates that each citizen has between 1 and 2 cell phones, this being the most used technological device in the country (98%), followed by laptops and desktops (74%) (Digital 2022 Global Overview Report, 2022).

Smartphones play a very important role in today's life as they have transformed the way of carrying out almost all the basic activities of life. Smartphones fulfil communication functions with virtual social networks and instant messaging applications, they facilitate the performance of work and academic functions; smartphones also provide entertainment and online shopping, and they increase productivity, through note applications, calendars or alarms and access information efficiently and conveniently, among others.

In this respect, we can highlight the positive contribution made by the use of smartphones in the psychological well-being of people, such as, for example, a greater social connection, allowing maintaining important social connections with friends and family and providing a sense of connection and social support (Li and Chan, 2022), an entertainment and distraction source, which may reduce stress and anxiety (Joshi et al., 2023); access to a wealth of information, encouraging lifelong learning and providing a sense of achievement and personal satisfaction (Mohammadi et al., 2020; Wang et al., 2022).

Despite many advantages and benefits offered by smartphones, there are also negative aspects associated with their use, among which are: source of distraction, especially in situations where attention is required, such as during work, study, or driving (Tábora Cruz, 2021; Joshi et al., 2022); increased social isolation, as excessive use of smartphones may lead to loss of social skills and isolation of people, limiting time spent on healthy activities such as exercise

and socialization in person (Zeng et al., 2022); emergency health problems, where prolonged smartphone use may conduct to health problems such as eye fatigue, neck and back pain, sleep disorders and other problems related to posture and ergonomics (Cheung et al., 2022); exposure to inappropriate content due to children and teenagers may be exposed to inappropriate content online, such as pornography and violence, which can have a negative impact on their emotional and cognitive development (Sohn et al., 2019; Girela-Serrano et al., 2022).

And finally, excessive use of smartphones may guide to dependence and addiction, which can affect people's mental and emotional health and negatively affect people's academic and work performance, their quality of life, family, personal and social relationships (Girela-Serrano et al., 2022; Ratan et al., 2022; Sung-Min and Byoung-Jin, 2022).

Smartphone dependence, also known as smartphone addiction, can be influenced by several factors, including psychological factors such as anxiety, depression, low self-esteem and impulsivity, self-control, deficiencies in life skills, among others (Pradeep et al., 2022; Ding et al., 2022); social factors, considering that the use of social media platforms, messaging apps and other forms of digital communication can create a sense of social pressure and FOMO (Fear of getting lost), generating excessive use of smartphones (Wan et al., 2022); environmental factors, as the environment can also contribute to smartphone addiction, because workplaces or schools encourage the use of smartphones for work or education, making it difficult to disconnect devices (Kim, 2021); neurobiological factors, as a result of the constant use of smartphones and the physical changes in the brain, such as altered levels of neurotransmitters, which can contribute to addiction (Dresp-Langley and Hutt, 2022; Chen et al., 2023).

In addition, the use of smartphones provides reward mechanisms by instant gratification through notifications, tastes, and other forms of positive feedback, that may activate reward mechanisms in the brain and reinforce

addictive behaviors (Rathod et al., 2022). And finally, smartphone and app design may also foster dependency, due to features such as infinite scrolling, AutoPlay videos, and notifications keep users engaged for longer periods of time, leading to dependency (Lyons et al, 2022).

Although dependence and addiction to smartphones are not yet included in the official classification of mental health disorders such as DSM and CEI-10, there is a worldwide concern about this problem, which is becoming more widespread, especially in the population of the young generations (Terán Prieto, 2019).

In this order of ideas, it is relevant to consider that the use of smartphones is related to the consumer philosophy of contemporary society as a product highly consumed and used not only in itself, but as a means for the consumption of all kinds of goods and services. Consumption is seen as a form of personal satisfaction and fulfillment, a path towards improving the quality of life and achieving happiness (Lipovetsky, 2000), with smartphones perceived as an essential element for everyday life, even to improve lifestyle. In addition, it is meaningful to consider that the generation who was born just before and after the year 2000, and who grew up in the midst of a society of consumption, abundance, and mediated by technology, show less tolerance to frustration, greater tendency in the search for immediate gratification, easing, low resilience and tolerance towards the difficulties of life, among others (Valdivia Campos, 2022). Added to the above, the authors highlight that contemporary youth experience, increasingly frequent, the loss of the sense of life, associated, in addition, to the increase in the time of use of technological means and social networks (Dueñas, 2022; Maseda et al., 2022).

Especially with the Covid-19 epidemic, it has increased the nonsense of life, the lack of meaning of life and anxiety before death and the use of the Internet through smartphones to escape from these feelings (van Deursen, 2020; Kayis et al., 2021; Hu et al., 2022).

Therefore, Şimşek et al. (2023) identified that *ikigai* is negatively associated with the problematic use of smartphones, also exerting a mediating effect between social support and addition to smartphones. Singh and Munderia (2022) argue that the positive use of smartphones is associated with the search for meaning in life, being dependence and addition related to low need of purpose in life.

Previous studies indicate that the use of cell phones can have a relationship with the sense of life and the hierarchy of vital values of people, being hedonic and superficial use of smartphones associated with the addition to these (Vujić and Szabo, 2022). On the other hand, the use of smartphones, considered as a compensatory mechanism, also reveals a negative correlation with subjective well-being (Tangmunkongvorakul et al., 2019; Koç & Turan, 2020).

Considering that the relationship between the use of technology and, especially, smartphones, with existential aspects such as meaning of life, purpose, and personal growth has not been widely explored, the present study aims to deepen possible association between dependence on the smartphone with the meaning of life, psychological well-being, and self-regulation in a sample of university students.

This research based on the hypothesis that the positive experience of the meaning of life and aspects related to psychological well-being as self-acceptance, positive relationships, autonomy, control of the environment, personal growth, and purpose in life may act as protective factors against the emergence of dependence and addition in the use of mobile phones. In this regard, it is relevant to note that, to prevent the problematic use of technology and cell phones, it is not only necessary to consider the values and motives underlying their use and related to the personological existential aspects mentioned above, but also having the ability to self-regulate their behavior according to these values and vital trends.

Consequently, and considering, in addition, the shortcomings in the skills of self-regulation in

the generation of contemporary youth (Maseda et al., 2022; Valdivia Campos, 2022), the present study was oriented to study, also, the relationship between self-regulation expressed in goal setting, perseverance in achieving vital purposes, decision making and learning from mistakes, and dependence on the use of Smartphone.

Finally, the main objective of the study was oriented to identify the presence of smartphone dependence in a sample of university students in Colombia, Cuba, and Mexico and its possible association with the meaning of life, psychological well-being and self-regulation.

## METHOD

### Type of study

This a quantitative approach, descriptive level, non-experimental design, transversal, ex postfact study. Participants

The study involved 276 university students from Colombia, Cuba, and Mexico. The sample of the study was carried out intentionally by means of a call by e-mail, encouraging the collaboration of the teachers working in the participating universities. Because the questionnaire was applied in a virtual way, the informed consent that was read and accepted by each participant was included in the questionnaire. The average age of the participants was  $M 23.5$  ( $Dt 6.7$ ), distributed in the range between 17 and 60 years. Female participants were 214 (77.5%), male 57 (20.7%) and other 5 (1.8%). 61.6% (170) of the participants only studied and 38.4% (106) studied and worked. Regarding age, 51.1% (141) were in the range between 17 and 21 years, 39.1% (108) in the range of 22 to 30 years and 9.8% (27) in the range between 31 and 60 years. As for the country of origin, 229 (83%) were from Colombia, 10, 9% (30) from Cuba and 6.2% (17) from Mexico.

### Instruments

The Smartphone dependency assessment used the Mobile Phone Dependency Test, Brief Mobile Phone Dependence Test (TDMB), designed and validated by Chóliz et al. (2016),

derived from the TDM in its original version (Chóliz, 2010; 2012). The festa instrument is organized in the Likert-type response format ranging from 1 (strongly disagree) to 5 (fully agree); and evaluates four dimensions: abstinence ( $\alpha = .81$ ), abuse and interference with other activities ( $\alpha = .70$ ), tolerance ( $\alpha = .75$ ), lack of control ( $\alpha = .64$ ). The questionnaire was adapted to the Argentine context by Durao et al. (2021).

The Argentine adaptation of the meaning test in life (Gottfried, 2016), initially designed and validated by Crumbaugh and Maholick in its English version (1964, 1969), was used for the evaluation of the meaning of life. The instrument consists of three factors: sense perception with explained variance of 29.54% and Cronbach's alpha of 0.83; sense experience with explained variance of 6.89% alpha of 0.76; and attitude to death with explained variance of 4.49% and alpha of 0.66. The reliability study of the 20 reagents reached an alpha coefficient of 0.89.

For the assessment of the self-regulation variable, the Abbreviated Self-Regulation Questionnaire (CAR), initially designed in English by Brown et al. (1999), whose original validation in Spanish was carried out by Pichardo et al (2014), and the second validation of the abridged Spanish version by Garzón Umerenkova et al. (2017). The instrument with the Likert scale format with answers between 1 (nothing), 2 (little); 3 (regular); 4 (enough) and 5 (much), evaluates four factors: Goals (alpha of 0.81); Perseverance (alpha of 0.71); Decision making (alpha of 0.76) and Learning errors (alpha of 0.79), with a total reliability of 0.87.

For the measurement of psychological well-being the Spanish adaptation of the scales of psychological well-being of Ryff (Díaz et al., 2006) was started. The Likert scale instrument with scores between 1 (totally disagree) and 6 (totally agree), consists of 29 items corresponding to six scales: Self-acceptance ( $\alpha=0.84$ ), Positive relations ( $\alpha=0.78$ ), Autonomy ( $\alpha=0.70$ ), Domain of the environment ( $\alpha=0.82$ ), Personal growth ( $\alpha=0.71$ ) and Purpose in life ( $\alpha=0.70$ ).

## Data analysis

Initially, the normality analysis of variables was performed, indicating a nonnormal distribution in all variables of the study. Descriptive statistics were used to identify means and standard deviation of scores in the variables. For the Inter group analysis according to sociodemographic variables, the Mann-Whitney U statistic was utilized for two groups and Kruskal-Wallis for more than two groups. The Spearman statistic was applied to the correlation between the variables. SPSS software version 25 was employed.

The age variable was recategorized into the qualitative variable with the ranges of 1 (17-21 years), 2 (22-30 years), and 3 (31-60 years), the criterion being the numerical composition of the groups, to achieve better numerical equivalence between them.

## RESULTS

Descriptive data on cell phone use in the study sample (Table N 1) indicated values located at the high level, indicating the presence of a situation associated with problematic cell phone use. The highest scores were identified in the variable related to the manifestation of withdrawal symptoms in cell phone use (M 4.4 (Dt 1), followed by tolerance (M 4.3 (Dt ,9), loss of control (M4,2 (Dt ,9) and, finally, abuse (M 4 (Dt ,9).

Table N 1 Descriptive data of cell phone use variables

Variable	M (Dt)
Abstinence	4,4 (1)
Abuse	4 (,9)
Tolerance	4,3 (,9)
Loss of control	4,2 (,9)
Total cell phone usage	4,2 (,9)

Source: Own

The value of the meaning of life variable, according to the percentile rating values of the test, was in the average zone of meaning uncertainty (Percentile = 50). This result does not indicate the presence of problems related to the meaning of life, but neither does in the population of the study at the general level in

which there is an orientation towards the achievement of the sense of life or the internal realization of the meaning of life (Table N 2).

Table N 2 Descriptive data of the meaning of life variables

Variables	M (Dt)	Puntaje total
Perception of meaning	5,4 (Dt 1,1)	59,4
Experience of meaning	4,8 (Dt 1,1)	28,8
Attitude towards death	4,9 (Dt1,1)	14,7
Total meaning of life	5.0 (Dt 1,1)	100

Source: Own

In relation to subjective well-being (Table N 3), the values of all the constituent variables were placed at the high mean level, indicating a positive perception of subjective well-being in the study sample. The highest score presented the variable of personal growth (M 3,9 (Dt ,6), followed by Purpose in life (M 3,7 (,7) and Self-acceptance (M 3,6 (,8).

Table N 3 Descriptive values of the constituent variables of subjective well-being

Variables	M (Dt)
Self-acceptance	3,6 (,8)
Positive relationships with others	3,4 (,7)
Autonomy	3,4 (,7)
Environment domain	3,4 (,6)
Purpose in life	3,7 (,7)
Personal growth	3,9 (,6)

Source: Own

In relation to the constituent variables of self-regulation (Table N 4), the highest scores were identified in Error Learning (M 3,6 (Dt ,8) and Goals (M 3,6 (Dt ,7), being located at the medium level, and presenting lower scores in the Perseverance variables (M 3,3 (Dt ,8) and Decision-making (M 3,2 (Dt ,8).

Table N 4 Descriptive values of the constituent variables of self-regulation

Variables	M (Dt)
Goals	3,6 (,7)
Perseverance	3,3 (,8)

Decision making 3,2 (.8)  
 Learning from mistakes 3,6 (.8)

Source: Own

The comparison of the study variables according to gender (Table N 5), indicated the

presence of the statistically significant difference in the Abstinence variable ( $p=,003$ ) with higher scores for the female gender. The rest of the variables were not associated with gender.

Table N 5 Comparison of study variables by gender

Variables	Female Me (Ri)	Male Me (Ri)	U de Mann Whitney	P
<b>Cell phone use</b>				
Abstinence	4,2 (1,3)	3,7 (1,3)	4522,000	,003*
Abuse	3,9 (1)	3,8 (1,5)	6094,000	,992
Tolerance	3,6 (1,3)	3,7 (1,3)	5999,500	,849
Loss of control	4,1 (1,3)	4 (1,2)	5734,500	,485
<b>Meaning of life</b>				
Perception of meaning	5,6(1,4)	5,5 (2)	5325,500	,141
Experience of meaning	5 (1,5)	5 (1,9)	5969,000	,805
Attitude towards death	5,3 (2,3)	5 (3)	6012,500	,869
<b>Subjective well-being</b>				
Self-acceptance	3,7(,8)	3,7(1)	6079,000	,969
Positive relationships with others	3,4 (1)	3,6 (1)	5373,500	,166
Autonomy	3,3 (1)	3,3 (1,2)	5212,000	,291
Environment domain	3,6 (1)	3,4 (1)	5921,000	,734
Purpose in life	3,8 (.8)	3,8 (.9)	5596,500	,336
Personal growth	4 (1)	4 (.9)	6054,000	,931
<b>Self-regulation</b>				
Goals	3,6 (.8)	3,6 (.8)	5636,000	,377
Perseverance	3,3 (1,1)	3,6 (1,3)	5739,000	,490
Decision making	3,2 (1,4)	3,4 (1,3)	5385,500	,174
Learning from mistakes	3,6 (1,3)	3,6 (1)	5930,000	,746

\*Significance with  $p<0.05$  value

Source: Own

The comparison of the variables of the study according to the occupancy variable of the participants (Table N 6) presented the statistically significant difference in abstinence ( $p=030$ ) indicating higher scores in the group of participants who only study.

The variables of Sense perception ( $p=,044$ ) and Sense experience ( $p=,042$ ) presented higher scores for the group of participants who study and work.

The same trend was observed in the variable of subjective well-being Purpose in life ( $p=,043$ ) and in the variables of self-regulation: Goals ( $p=,035$ ) and Decision-making ( $p=,049$ ).

Table N 6 Comparison of study variables by occupation

Variables	Study Me (Ri)	Study end work Me (Ri)	U de Mann Whitney	P
<b>Cell phone use</b>				
Abstinence	4, 1 (1,3)	3,6 (1,7)	8038,000	,030*
Abuse	4 (1)	4 (1,5)	8748,500	,683
Tolerance	3,9 (1,3)	3, 9 (1,3)	8722,000	,653
Loss of control	4, 1 (1,3)	4 (1,2)	8411,000	,349
<b>Meaning of life</b>				
Perception of meaning	5,5 (1,7)	5,9 (1)	7766,000	,044*
Experience of meaning	4,8 (1,8)	5,2 (1,5)	7817,500	,042*
Attitude towards death	5 (2,3)	5,2 (2,3)	8310,000	,276
<b>Subjective well-being</b>				
Self-acceptance	3,7 (,8)	3,7(1)	8117,000	,163
Positive relationships with others	3,4 (,8)	3,6 (1)	8088,500	,152
Autonomy	3,3 (1)	3,4 (1)	7992,000	,113
Environment domain	3,4 (,8)	3,6 (1,2)	7984,000	,110
Purpose in life	3,7 (,8)	4 (1)	7934,500	,043*
Personal growth	4 (1)	4 (1,3)	8646,500	,569
<b>Self-regulation</b>				
Goals	3,4 (,8)	3,8 (,7)	8279,000	,035*
Perseverance	3,3 (1,1)	3,3 (1)	8224,500	,220
Decision making	3,1 (1,4)	3,4 (1,2)	7793,000	,049*
Learning from mistakes	3,6 (1,3)	3,6 (1)	8650,000	,573

\*Significance with  $p<0.05$  value

Source: Own

The comparison of study variables according to age groups (Table N 7), indicated the presence of significant difference statistically in all variables related to cell phone use: abstinence ( $p=,040$ ), abuse ( $p=,018$ ), tolerance ( $p=,047$ ) and loss of control ( $p=,005$ ), presented the tendency to decrease scores in the group over 30 years.

Similarly, in relation to the meaning of life, the statistically significant difference was presented in the three constituent variables: perception of sense ( $p=,001$ ), experience of sense ( $p=,011$ ) and attitude to death ( $p=,023$ ), indicated higher scores with increasing age.

Regarding subjective well-being, the statistically significant difference was identified in the variables of Self-acceptance ( $p=.021$ ), Autonomy ( $p=.012$ ) and Environmental Domain ( $p=.000$ ), presenting higher scores in the age group over 30 years.

The self-regulation variables presented the difference in decision-making ( $p=.006$ ) and learning of errors ( $p=.035$ ), also with higher scores in the older age group.

Table N 7 Comparison of study variables by age

Variables	17-21 years Me (Ri)	22-30 years Me (Ri)	31-60 years Me (Ri)	U de Mann Whitney	P
<b>Cell phone use</b>					
Abstinence	4 (1,7)	4 (1,6)	3,6 (2)	1644,000	,040*
Abuse	4,1 (1,3)	4,1 (1)	3,8 (2)	1358,500	,018*
Tolerance	4,2 (1,3)	3,9 (1,7)	3,6 (1,7)	1482,000	,047*
Loss of control	4 (1,2)	4 (1,2)	3, 6 (1,3)	1255,000	,005*
<b>Meaning of life</b>					
Perception of meaning	5,5 (1,5)	5,8 (1,8)	6,3 (1,1)	1104,500	,001*
Experience of meaning	4,8 (1,8)	5 (1,5)	5,7 (1,7)	1314,000	,011*
Attitude towards death	5 (2)	5,3 (3)	6 (1,7)	1379,500	,023*
<b>Subjective well-being</b>					
Self-acceptance	3,7 (,8)	3,7 (1)	4 (,5)	1374,500	,021*
Positive relationships with others	3,4 (1,1)	3,6 (1)	3,4 (1)	1745,000	,492
Autonomy	3,3 (,7)	3,3 (1)	3,8 (1)	1326,500	,012*
Environment domain	3,4 (,8)	3,5 (1)	4 (,6)	1063,000	,000*
Purpose in life	3,8 (,6)	4 (1,2)	4 (,8)	1474,500	,062
Personal growth	4 (1,1)	4 (,8)	4 (1)	1648,500	,265
<b>Self-regulation</b>					
Goals	3,6 (,8)	3,6 (,8)	3,8 (,8)	1565,500	,143
Perseverance	3,3 (1)	3,5 (1,3)	3,3 (1,3)	1745,000	,490
Decision making	3,2 (1,2)	3,4 (1,2)	3,6 (1,4)	1264,500	,006*
Learning from mistakes	3,6 (1,2)	3,6 (1)	4 (,7)	1631,000	,035*

\*Significance with  $p<0.05$  value

Source: Own

The correlation between cell phone use and meaning of life variables (Table N 8), showed correlations between low and medium, negative between sense perception and abstinence ( $r=-147/p=015$ ), abuse ( $r=-250/p=000$ ) and loss of

control ( $r=-178/p=003$ ); between experience of sense and abstinence ( $r=-208/p=001$ ), abuse ( $r=-342/p=000$ ), tolerance ( $r=-164/p=006$ ) and loss of control ( $r=-285/p=000$ ); between attitude towards death and abstinence ( $r=-$



155/p=010), abuse ( $r=-180/p=003$ ) and loss of control ( $r=-152/p=011$ ).

This indicates that the greater the commitment to the meaning of life and the orientation

towards the achievement of the sense of life or internal realization of the meaning of life in the participants of the study sample, the lower the risk of presenting a problematic behavior in the cell phone management.

Table N 8 Correlation between cell phone use and meaning of life.

Variables	Abstinence	Abuse	Tolerance	Loss of control
Perception of meaning	$r=-147^*/p=015$	$r=-250^{**}/p=000$	$r=-046/p=451$	$r=-178^{**}/p=003$
Experience of meaning	$r=-208^{**}/p=001$	$r=-342^{**}/p=000$	$r=-164^{**}/p=006$	$r=-285^{**}/p=000$
Attitude towards death	$r=-155^{**}/p=010$	$r=-180^{**}/p=003$	$r=-002/p=977$	$r=-152^*/p=011$

\*Correlation is significant at level 0.05 (bilateral)

\*\*Correlation is significant at level 0.01 (bilateral)

Source: Own

The correlation between cell phone use and subjective well-being indicated the low and negative correlations between positive relationships with others and abstinence ( $r=-140/p=020$ ) and loss of control ( $r=-153/p=011$ ); between autonomy and abstinence ( $r=-227/p=000$ ), abuse ( $r=-203/p=001$ ), tolerance ( $r=-142/p=018$ ) and loss of control ( $r=-268/p=000$ ); between environment domain and abstinence ( $r=-123/p=041$ ), abuse ( $r=-$

$168/p=005$ ); tolerance ( $r=-147/p=015$ ) and loss of control ( $r=-204/p=001$ ); between life purpose and abuse ( $r=-205/p=001$ ) and loss of control ( $r=-119/p=049$ ); and , finally, the personal growth variable has a negative correlation with tolerance ( $r=-124/p=040$ ).

These data indicate that subjective well-being acts as a protective variable against the emergence of problematic behavior related to cell phone use.

Table N 9 Correlation between cell phone use and subjective well-being.

Variables	Abstinence	Abuse	Tolerance	Loss of control
Self-acceptance	$r=-087/p=150$	$r=-082/p=175$	$r=-018/p=768$	$r=-060/p=319$
Positive relationships with others	$r=-140^*/p=020$	$r=-068/p=261$	$r=-116/p=054$	$r=-153^*/p=011$
Autonomy	$r=-227^{**}/p=000$	$r=-203^{**}/p=001$	$r=-142^*/p=018$	$r=-268^{**}/p=000$
Environment domain	$r=-123^*/p=041$	$r=-168^{**}/p=005$	$r=-147^*/p=015$	$r=-204^*/p=001$
Purpose in life	$r=-106/p=079$	$r=-205^{**}/p=001$	$r=-111/p=066$	$r=-119^*/p=049$
Personal growth	$r=-002/p=972$	$r=-022/p=718$	$r=-124^*/p=040$	$r=-046^*/p=447$

\*Correlation is significant at level 0.05 (bilateral)

\*\*Correlation is significant at level 0.01 (bilateral)

Source: Own

The correlation between cell phone use and self-regulation showed correlations between low and medium negative variables between perseverance and abstinence ( $r=-162/p=007$ ), abuse ( $r=-230/p=000$ ), tolerance ( $r=-$

$196/p=001$ ) and loss of control ( $r=-202/p=001$ ); between decision making and abstinence ( $r=-210/p=000$ ), abuse ( $r=-261/p=000$ ), tolerance ( $r=-144/p=017$ ) and loss of control ( $r=-265/p=000$ ); between error learning and

abstinence ( $r=-.153/p=.011$ ), tolerance ( $r=-.202/p=.001$ ) and loss of control ( $r=-.214/p=.000$ ); the target variable presented negative correlation only with abuse ( $r=-.175/p=.004$ ).

These data indicate the positive impact of a good management of self-regulation on problematic behavior associated with cell phone use.

Table N 10 Correlation between cell phone use and self-regulation.

Variables	Abstinence	Abuse	Tolerance	Loss of control
Goals	$r=-.103/p=.089$	$r=-.175^{**}/p=.004$	$r=-.082/p=.172$	$r=-.106/p=.079$
Perseverance	$r=-.162^{**}/p=.007$	$r=-.230^{**}/p=.000$	$r=-.196^{**}/p=.001$	$r=-.202^{**}/p=.001$
Decision making	$r=-.210^{**}/p=.000$	$r=-.261^{**}/p=.000$	$r=-.144^{*}/p=.017$	$r=-.265^{**}/p=.000$
Learning from mistakes	$r=-.153^{*}/p=.011$	$r=-.113/p=.060$	$r=-.202^{**}/p=.001$	$r=-.214^{**}/p=.000$

\*Correlation is significant at level 0.05 (bilateral)

\*\*Correlation is significant at level 0.01 (bilateral)

Source: Own

## DISCUSSION

The results of the study indicated that the study participants present a problematic use of the cell phone, where the presence of aspects associated with the characteristics of an addictive behavior can be highlighted as withdrawal symptoms, tolerance, loss of control in cell phone use and, finally, the presence of abuse in their respective use. These findings are consistent with other studies that indicate the presence of problematic smartphone use in the young population, associated with the emergence of mental health problems, sleep disturbances, among others (Sohn et al., 2019; Chan et al., 2023; Mengistu et al., 2023).

In terms of the relationship between sociodemographic variables and problematic cell phone use, the gender presented no significant difference, except in the abstinence variable, which scored higher in the female gender. Other studies on the subject have also not identified an association with the gender variable in problematic smartphone use, suggesting that this problem affects all genders equally (Hosen et al., 2021; Kumar Behera & Kumar, 2023; Wu & Chou, 2023).

In contrast, age emerged as a relevant factor, showing that participants over 30 had lower

scores in problematic smartphone use in all constituent variables. In this regard, there are also studies that affirm that the younger generations are those that present the greatest risk of developing addictive behaviors in terms of the use of cell phones, internet, virtual social networks, among others (Elhai et al., 2017; Csibi et al., 2021). Horwood et al. (2021) relate the age of 40 years as an approximate point from which the problematic use of the cell phone decreases, a fact that goes in line with the findings of the present study.

Regarding the occupancy of the study participants, this was not associated with cell phone use except in the abstinence variable. This may probably be due to an increased occupation of participants who study and work, which acts as a protective factor for withdrawal symptoms (Ryan & Boland, 2021).

The evaluation of the meaning of life showed that the participants of the present study are generally in a situation of uncertainty, without a determined orientation towards the achievement or internal realization of the meaning of life. Considering that the highest percentage of the sample was in the age range between 17 and 21 years, followed by the range of 21-30 years, this situation reflects

deficiencies in terms of existential commitment to life in the population of contemporary youth.

Therefore, the authors also emphasize that contemporary youth present greater difficulties at the level of meaning of life, which could be due to multiple factors, among which could be the superficial and consumerist philosophy of contemporary society (Lipovetsky, 2000; Bauman, 2003; Klimenko, 2014); effect of the use of social networks aimed at promoting triviality in existential ideals (Sundaram, 2018; Kusuma, 2020; Chen & Xiao, 2022); superficial leisure activities that have an impact on the formation of meanings of life, momentary and immediate enjoyment, little effort and little tolerance to frustration (Iso-Ahola & Baumeister, 2023). In this aspect the use of the cell phone in an unhealthy and unnecessary way, where they spend a high quantity of time reviewing social networks, watching videos on TikTok, or Facebook, etc., leads people to occupy their mind most of the day in superficial and rather unofficial things, moving them further away from the possibility of thinking and reflecting on their life, to make deep introspection and direct their attention to the transcendental aspects of their life, increasingly turning their way of thinking into superfluous and alienated.

In this regard, the findings of the present study showed that study participants who showed a lower tendency towards problematic behavior in cell phone management, that is, those who had greater control in its use and less dependence and abuse, also presented greater commitment to the meaning of life and the orientation towards its achievement and inner realization of the meaning of life. The results of the present study also indicated that this is a problem associated more with younger ages, because the commitment to the meaning of life indicated significant increase in older groups, also associated with decreased problematic cell phone use.

In relation to age, the authors indicate that as people get older, they show the tendency to seek a greater commitment to the search for the meaning of life and its meaning at their own and personal level, moving away from the

standards of social superficiality (Dhanjal, 2019; Golovchanova et al., 2021).

On the other hand, both sense perception and sense experience presented higher scores for the group of participants who study and work, which could be, probably related to a greater commitment to their lives by students who, in addition to studying, work and face the situation of independence and economic responsibility.

Continuing with the analysis of the variables evaluated in the current study, we identified a negative correlation between problematic cell use and most of the variables of subjective well-being.

To get closer to understanding this relationship, we can resume the studies advanced by Csikszentmihalyi et al. (1977) who reported that such important indicators of psychological well-being as mental alertness, sense of control, the sense of competence and the sense of challenge were affected in people when they watched television, which was not the case when they practiced activities such as sports or games.

Csikszentmihalyi (1999) related this situation to the experiences of "flow", these being indispensable for creative thinking and based on an "active" participation instead of a passive absorption in the reception and processing of information by the brain.

Apparently, activities that involve an active participation cognitively, and stimulating and associated with a mental effort that allows to create and engage mentally in reality and not only be a mere spectator or passive observer of things, contribute significantly to people's subjective well-being.

In today's 21st century society we are not only exposed to the consumption of content through television, as in the case of Csikszentmihalyi studies, but we also have computers, tablets and especially smartphones as a more used technological tool, which allows access to an infinite number of contents, individually selected for each user based on the predictive algorithms of their preferences (Ionescu &

Licu, 2023), causing people to spend more time, being passive, and uncritical viewers of superficial content on social networks.

The above also refers us to take a critical position regarding another finding of the present study that indicated a positive perception of the study participants regarding their subjective well-being in general, highlighting the variable of personal growth, purpose in life and self-acceptance.

Although, at first glance, this could be considered a positive factor, considering another finding relevant to the sample of this study, associated with a level of uncertainty as to the meaning of life, it could also be hypothesized that this positive perception could be related to low expectations of achievement and purpose in terms of self-realization in life, factors of great relevance for the experience of the sense of life. In this direction of studies, Ionescu & Licu (2023) claim that the use of different social networking applications, such as, for example, TikTok with its highly customizable algorithm can have an impact on the self-perceived identity, personal values or concepts related to the perception of self in people, being this influence not always good and positive for their respective personal growth. Contemporary young people have been exposed through the possession of a cell phone in order to have fun, but consuming superficial contents, which distract them, make them laugh or forget their problems in the real world, spending significant time in a day, observing such contents, in addition, which mostly are selected by the algorithms of these social networks to maintain user's attention and encourage their addictive behavior.

However, this type of content does not contribute to the development of reflective thinking, it does not enable active and productive mental effort, promoting superficial values of immediate enjoyment, which may lead to a situation of subjective configuration similar to that observed in the participants in the present study, where people perceive their subjective well-being as positive. However, they do not present any obvious commitment to the pursuit of their meaning of life or a

determined orientation towards the attainment or inner realization of the meaning of life.

The above we can relate to the phenomenon "nini" (neet) described by several authors as a behavior associated with a certain subjective stance on life, where young adults avoid committing themselves to certain aspects of responsibility in their life, since they "neither" work, "nor" study, and literally do nothing except interact with their cell phones for long periods of time (Kõiv & Saks, 2023; Paabort et al., 2023; Rahmani & Groot, 2023). They seem to feel very good about themselves and their life, but this positive perception of their subjective well-being is a form of "uncritical bubble" against their parasitic way of life.

It is also meaningful to note that the younger participants in the study had a lower self-acceptance, autonomy, and control of the environment than more adult participants, which could also be related to a higher level of problematic cell use at younger ages in the study sample.

It is necessary to emphasize that virtual media and the immediate availability of all types of information can bring great benefits for learning, communication and labor productivity, but their misuse, not accompanied by adequate criteria and training, can bring disastrous consequences for the decrease of critical and reflective thinking and the ability of experiential introspection that are necessary for an existential commitment to your own life. In this regard, it is vital to train young generations from very early ages in socio-emotional and critical-reflective thinking skills to promote a responsible and healthy use of virtual and technological media.

Regarding the above, the results of the present study indicated that the ability to self-regulation correlated negatively with the problematic use of the cell phone. These findings are consistent with other studies that indicate that the relationship between problematic smartphone use, and social media fatigue and technostress is mediated by self-control (Świątek et al., 2023). Lack of impulse inhibition skills, low perseverance in

controlling compulsive notification verification, may be an important factor that produces in individuals' exhaustion, fatigue or emotional frustration and feeling overwhelmed, which manifests itself in thoughtless navigation through the content (Świątek et al., 2023).

In this sense, in the sample of the study at the general level there were deficiencies in the aspects such as perseverance and decision-making as constituent elements of the construct of self-regulation. In addition, younger participants showed greater deficiencies in decision-making and in learning from mistakes.

The authors who study these aspects highlight that skills such as decision-making and error learning are complex psychic functions related to the level of consciousness of the individual and his cognitive and metacognitive abilities (Pomytkina et al., 2020), which indicates that to prepare adolescents and young people in the skills of self-regulation implies having a solid base of the development of their cognitive, executive, and metacognitive functions. And, as has already been considered throughout this discussion, the early and prolonged exposure of a young brain to the superficial and banal contents of virtual social networks does not facilitate precisely this type of development.

## Conclusions

The results of the study showed that the problematic use of the cell is negatively related to the aspects associated with the search and experience of a meaningful and productive sense of life. The participants of the sample presented a tendency towards a problematic use of the cell phone and were placed in an area of uncertainty of their sense of life, indicating a subjective position of passivity and absence of commitment to their sense of life.

The younger participants also presented a lower degree of self-acceptance, less autonomy, and control of the environment as important aspects for their subjective well-being. Self-regulation skills, as a protective factor for the emergence of problematic cell phone use, showed lower scores in younger participants, especially in the

variables of perseverance, decision making and learning from mistakes.

From the results of the present study, it is suggested to pay greater attention to the problem of cell phone use in children, adolescents and young people, since an early, prolonged and also excessive, virtual media and social media content can significantly affect their way of thinking, feeling about themselves, their existential values and commitment to the search for a sense of existence oriented to a productive, meaningful and useful life

It is essential to promote in young people the skills of self-regulation and awareness about the healthy use of technology, teach philosophical values of life, direct them towards a life project committed to their self-realization in life, to promote the development of critical-reflective thought in order to help them learn to discern between useful and contributing contents for their personal development and superficial and banal contents that not only do not contribute but, Moreover, they stagnate the mind by creating the illusion of false well-being.

One of the elements that has proven to be very functional in the treatment of addictive behaviors is mindfulness (Rosenthal et al., 2021), may also have evidence in the contribution to reduce problematic behaviors in cell phone use (Hallauer et al., 2022), considering, moreover, that this technique of working with awareness and attention allows to promote the skills of introspection, reflection and mental tranquility that counteract effects of mental fatigue produced by excessive exposure to screens of the cell phone.

Equally, it is supremely important to carry out educational campaigns at the family level to delay the age of first ownership of a smartphone or tablet, since there are studies that indicate that the older children are when parents buy their first cell phone, the lower the mental health effects they suffer as a result of exposure to virtual media (Sapien Labs, 2023).

As for the limitations of the present study, a relatively small sample can be indicated, associated, in addition, with a non-probabilistic

selection of this one, which raises the need to continue in this line of studies, improving the sampling, in order to have a better picture and better understanding of the phenomenon of cell phone use in contemporary youth, thus identifying both its contributions and negative consequences for mental health and aspects of existential commitment to the meaning of life.

The results of the present study don't show the difference between the countries of origin of the study participants, which could also be because the sample was not quantitatively proportional. It is recommended to expand sampling in countries other than Colombia with equitable samples to better identify the presence of possible differences arising from certain educational policies that may be being implemented elsewhere in respect of measures use of technology in young people.

#### Conflict of interest

The authors of the article declare not to have any conflict of interest of a labor, contractual or ethical nature in the realization of the study and article presented.

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