

Validation and Adaptation of the Social Media Engagement Questionnaire SMEQ in Colombian people

Validación y adaptación del “Cuestionario de involucramiento en redes sociales digitales (SMEQ)” en población colombiana

Validação e adaptação do “Questionário de Envolvimento dos Meios de Comunicação Social (SMEQ)” numa população colombiana.

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Abstract

Introduction: In recent years and globally, digital social networks have become one of the main means of communication. This has led to the genesis of a new field of analysis and study regarding the behaviors associated with them. However, many effects related to the use of social networks have been little investigated in the Colombian population. Adjusting research instruments that evaluate the influence of social networks on people is beneficial for understanding associated phenomena. **Objective:** The purpose of this article is to validate the “Involvement with Digital Social Networks Questionnaire (SMEQ)” in the Colombian population. This instrument is an efficient tool to measure the time people spend on social networks. **Method:** For the validation, there was a sample of 289 people (71.6% female and 28.4% male), aged between 18 and 62 years (M= 28 years; SD= 10.46), mainly from the city of Medellín (Colombia) and surrounding areas. **Results:** The findings showed a good model fit (CFI= .99; SRMR= 0.038) and adequate internal consistency ($\alpha = .85$; $\omega = .90$). **Conclusion:** The psychometric properties of the SMEQ questionnaire showed adequate values, which would allow its administration in the Colombian context.

Keywords: Social networks; Validation; Addiction; Questionnaire; Psychometrics; SMEQ.

Resumen

Introducción: En el transcurso de los últimos años y a nivel global, las redes sociales digitales constituyen uno de los principales medios de comunicación. Esto ha propiciado la génesis de un nuevo campo de análisis y estudio en lo que refiere a los comportamientos asociados a ellas. Sin embargo, muchos efectos relacionados con el uso de las redes sociales han sido poco indagados en la población colombiana. Ajustar instrumentos investigativos que evalúen la influencia de las redes sociales en las personas es de beneficio para la comprensión de fenómenos asociados. **Objetivo:** El propósito de este artículo es validar en la población colombiana el “Cuestionario de involucramiento con las redes sociales digitales (SMEQ)”. Este instrumento es una herramienta eficiente para medir el tiempo en que las personas pasan en las redes sociales. **Método:** Para la validación se contó con una muestra de 289 personas (71.6% femenino y 28.4% masculino), con edades entre los 18 y los 62 años (M= 28 años; DT= 10.46), principalmente de la ciudad de Medellín (Colombia) y de zonas aledañas. **Resultados:** Los hallazgos mostraron un buen ajuste del modelo (CFI= .99; SRMR= 0.038) y una consistencia interna adecuada ($\alpha = .85$; $\omega = .90$). **Conclusión:** Las propiedades psicométricas del cuestionario SMEQ demostraron poseer valores adecuados, lo que posibilitará su administración en el contexto colombiano.

Palabras clave: Redes sociales; Validación; Adicción; Cuestionario; Psicometría; SMEQ²

1 Los términos clave han sido recuperados a partir del Tesoro United Nations Educational, Scientific and Cultural Organization (2020). <https://vocabularies.unesco.org/browser/es/>

2 Involvement with Digital Social Networks Questionnaire



Resumo

Introdução: Nos últimos anos e globalmente, as redes sociais digitais se tornaram um dos principais meios de comunicação. Isto levou à gênese de um novo campo de análise e estudo sobre os comportamentos associados a elas. No entanto, muitos efeitos relacionados ao uso de redes sociais têm sido pouco investigados na população colombiana. O ajuste dos instrumentos de pesquisa que avaliam a influência das redes sociais nas pessoas é benéfico para a compreensão dos fenômenos associados. **Objetivo:** O objetivo deste artigo é validar o “Questionário de Envolvimento com Redes Sociais Digitais (SMEQ)” na população colombiana. Este instrumento é uma ferramenta eficiente para medir o tempo que as pessoas gastam em redes sociais. **Método:** Para a validação, houve uma amostra de 289 pessoas (71,6% mulheres e 28,4% homens), com idade entre 18 e 62 anos (M= 28 anos; SD= 10,46), principalmente da cidade de Medellín (Colômbia) e áreas circunvizinhas. **Resultados:** Os resultados mostraram um bom ajuste do modelo (CFI= .99; SRMR= 0,038) e consistência interna adequada ($\alpha = .85$; $\omega = .90$). **Conclusão:** As propriedades psicométricas do questionário SMEQ mostraram valores adequados, o que permitiria sua administração no contexto colombiano.

Palavras-chave: Redes sociais; Validação; Vício; Questionário; Psicometria; SMEQ.



Introduction

Nowadays, digital social networks are a recurrent means of communication for young populations. These media are important for business, entrepreneurship, education, entertainment and even scenarios to achieve connection between world leaders and their followers. Social networks generate spaces for socialization, marketing and advertising. However, some studies refer to the disadvantages of excessive use of networks for mental and physical health.

The generation of multicenter and contrasted studies in different social contexts requires the creation and contextualization of psychometric scales adapted to the culture to avoid biases related to semantic, conceptual and idiomatic aspects for which there is no equivalence between the population for which the study was designed and that for which it was applied without the respective cultural validation (Pérez-Ciordia et al., 2012). In Latin America there are few studies on social networks and their negative influence on human behavior. There are not enough instruments created or validated in the Latin American context, nor are they usable for diagnoses and measurements in the area of psychology. The research developed in Latin America will contribute to the design of public policies that regulate digital media and the time of exposure to them. The purpose of this study is to validate the "Questionnaire of involvement with digital social networks (SMEQ)" in the Colombian population. This questionnaire is an efficient tool to measure the frequency of use of digital social networks by individuals.

Theoretical framework

Digital social networks are one of the most used sources of socialization and leisure among young Colombians. A study conducted by Hootsuite and We Are Social, which evaluates the year 2020 in terms of the use of digital technology in the world, refers that users of DSNs increased in Colombia by 11.4% compared to the previous year. This translates into approximately 39 million Colombians being active on these digital platforms, four million more than in 2019. Colombia was also positioned as one of the countries with the highest growth in the use of digital social networks, surpassing countries such as Brazil (7.1%) and Argentina (5.9%), which have been prominent in digital updating. It should be noted that, according to the report, not only the number of users of digital social networks increased, but also the average time people spend browsing them, which was calculated at a daily average of three hours and forty-five minutes (Kemp, 2021).

For these reasons, different researches warn that the frequency of prolonged use of social networks is linked to addictive behavior and often also correlated with the loss of mental health and other disorders (Morahan-Martin & Schumacher, 2000; Rodríguez Puentes & Fernández Parra, 2014).

A study conducted in Colombia with university students by Puerta-Cortés and Carbonell (2013) found a positive correlation with problematic internet use and the percentage of time spent surfing the net, reaching up to 84% of their time on social networks. Quantitative studies also correlate prolonged use of social networks with attentional difficulties, loss of impulse control and increased aggressiveness (Barrón-Colin & Mejía-Alvarado, 2021; Lacunza et al., 2020; Karim et al., 2020).



The Social Media Engagement Questionnaire (SMEQ) was proposed by Przybylski et al. (2013) with the purpose of measuring the frequency of use during everyday life in users of digital social networks. The instrument has been used in several countries such as Italy (Lai et al., 2016) where a positive correlation was found between the SMEQ with FoMO (fear of missing out) ($r=0.60$, $p=0.005$) and this in turn with the need for social inclusion ($r=0.61$, $p=0.005$).

In Spain Gil et al. (2015) conducted a study in which they used the SMEQ scale to measure addictive behavior and problematic smartphone use and correlated it with the FoMO, the study found that both addictive behavior around the cell phone and the FoMO predict psychopathological symptoms, especially, anxiety.

In Saudi Arabia Al-Yahya et al. (2020) conducted a study using the SMEQ, with two other scales. These were applied to 513 people to identify whether social network use affected self-image and decision making around cosmetic surgery. The study found that 98.6% of the participants use social networks between 3 and 5 hours a day and also concluded that the use of social networks has an impact on the appreciation of body appearance and the decision to undergo a cosmetic procedure.

The SMEQ scale has also been validated in different contexts such as China (Ni et al., 2020), Brazil (Martin & Simkin, 2021; Mariano et al., 2019), New Zealand (Classen et al., 2020) and Argentina (Martin & Simkin, 2021) showing adequate psychometric properties ($RMSEA \leq 0.8$; $CFI \geq .90$).

So far, the SMEQ questionnaire is one of the instruments that has gained great relevance when assessing involvement in digital social networks. However, no studies have been found in the Colombian population that attempt to adapt and validate this scale. For this reason, the objective of this study is to validate and adapt the instrument, thus contributing to the investigation of the phenomenon in Colombia.

Methodology

The study was a quantitative methodology of exploratory scope, non-experimental design. The research sample was conducted as a non-probabilistic intentional sample by convenience. Data collection was obtained through an ad hoc questionnaire published and promoted in social networks.

Participants

The sample consisted of 289 people of different sexes (71.6% female and 28.4% male), aged between 18 and 62 years ($M= 28$ years; $SD= 10.46$), residents of the city of Medellín (69%) and, to a lesser extent, of neighboring areas (Bello 7%, Quibdó 4.1%, Bello 3.1% and other areas of Colombia 16.8%).

Inclusion criteria: Be of legal age, be under 30 years old, use social networks and live in Colombia.



Exclusion criteria: Living outside Colombian territory, leaving the answers to the questionnaire unfinished, being in an age range lower or higher than that determined in this study (18 - 30 years old).

Measurable Variable: Frequency of use of social networks.

Instrument: Social Media Engagement Questionnaire (SMEQ).

The Digital Social Network Engagement Questionnaire (Przybylski et al., 2013) is a self-administered questionnaire that includes 5 items that assess the frequency of digital social network use at different times of the day during the course of a week (e.g., "How often do you use social networks before going to bed?"). The scale presents an eight-point Likert-type response format that oscillates according to the time spent on the networks. The present study uses a version originally adapted to the Argentine context (Martin & Simkin, 2021). See Annex 1.

Procedure

A survey was structured in a Google Forms form that included an informed consent and where participants were informed of the type of research, data protection was guaranteed and they also decided whether to continue filling out the form or not. In addition, it included a sociodemographic questionnaire and the SMEQ questionnaire. The form was posted by the researchers on social networks such as Facebook, WhatsApp and Instagram from October 2021- February 2022.

The questions were self-managed and only the completed forms were taken into account and that they were within the Colombian context.

The SPSS 24 and LISREL 4.1 programs were used for the statistical investigation. First, the data downloaded in Excel from Google were transferred to SPSS 24, the database was cleaned and descriptive analyses of the sociodemographic sample were performed. Then the reliability of the SMEQ scale was recognized from the internal consistency analysis by using McDonald's Alpha Ordinal and Omega statistic (Domínguez-Lara, 2018).

Subsequently, the validity of the scale was weighted with a confirmatory factor analysis (CFA) using the generalized least squares (GLS) technique for the estimation of unknown parameters when variances are unequal, according to recommendations in the field (Schermelleh-Engel et al., 2003).

The scale was assessed by means of goodness-of-fit indices such as the chi-square (χ^2) and the NNFI (Non-Normed Fit Index) which marks favorable results if they are equal to 1 or results greater than 0.90 (Montaño, 2014), the instrument was also evaluated with the help of the CFI (Comparative fit index) which catalogs results close to 1 will be of good fit (Bentler and Bonett, 1980) and finally evaluation was made to the test using the SRMR (Standardized Root Mean Square Residual), which indicates that values less than or equal to .10 as acceptable values and below 0.05 will be taken as useful indications of good fit (Schermelleh-Engel et al., 2003).



Ethical responsibility.

This research was conducted for research purposes, assuming the Colombian Law 1581 of 2012, which is responsible for updating, rectifying and protecting the information that has been collected in databases or files of a personal nature, with the clarity and veracity due to the exercise carried out. The participants were notified by means of an informed consent where they are guaranteed the protection of their data and their right to non-participation. They were also informed that this research is for purely academic purposes.

Results

Item Analysis and Internal Consistency of the SMEQ Scale

The internal consistency was evaluated from the Mc-Donald's Alpha Ordinal and Omega statistics obtaining acceptable values, considering what the literature recommends (Ventura León & Caycho Rodríguez, 2017). In addition, a confirmatory factor analysis was performed, evaluated from the χ^2 , IFI, (Incremental Fit Index), NNFI (Non-Normed Fit Index), CFI (Comparative fit index) and SRMR (Standardized Root Mean Square Residual) goodness-of-fit indices (Holgado-Tello et al., 2009).

Table 1 shows how the analysis confirms that the model fits correctly. In this sense, the IFI, NNFI and CFI indices achieved values higher than .90, which are within the range of results accepted as a good fit according to results that are within the range of results accepted as a good fit according to the literature, and the SRMR a value lower than .08, which is considered to be within the range of good fit (Hair et al., 2009; Jordan Muiños, 2021). The χ^2 index was also evaluated and the result was 17.412 (P= 0.00161).

Tabla 1

Análisis Factorial Confirmatorio. Escala SMEQ.

Coefficiente	χ^2	NNFI	CFI	IFI	SRMR	α	Ω
SMEQ	17.412	.98	.99	.99	0.038	0.85	0.90

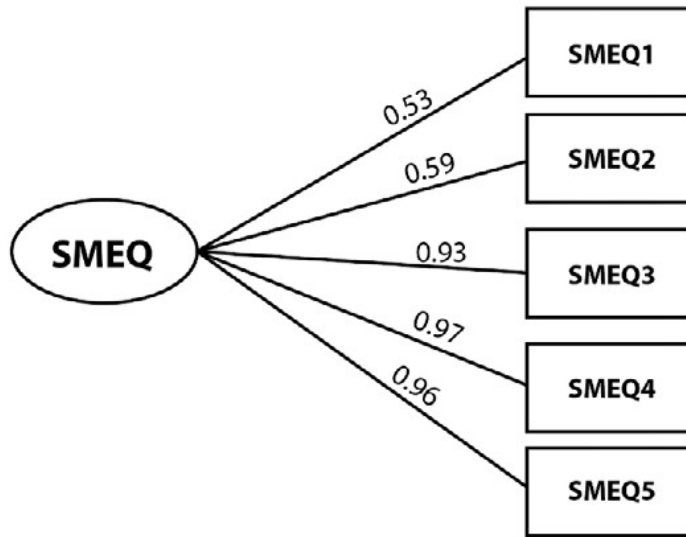
Nota. χ^2 : Chi Cuadrado; IFI: Índice de Ajuste Incremental; NNFI: Índice de Ajuste no Normado; CFI: Índice de Ajuste Comparado; SRMR: Residuo Estandarizado Cuadrático Medio; α : Alpha Ordinal; ω : Omega de McDonald.

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Figure 1 shows that the structural values of the SMEQ questionnaire model have adequate estimated parameters according to the results of the CFA.

Figura 1
Modelo de la escala SMEQ (Items).



Nota. SMEQ = Social Media Engagement Questionnaire (items).

Discussion

It is important to note that, beyond the satisfactory results presented by the Digital Social Network Engagement Questionnaire (SMEQ) in this context, as in other foreign territories such as the United States (Baker et al., 2016), Israel (Alt, 2015), Argentina (Martin and Simkin, 2021), Brazil (Mariano et al., 2019), Arabia (Al-Yahya et al., 2020) and Nigeria with the SMEQ-A (Suleiman et al., 2020) the psychometric properties showed adequate model fit, reliability and validity.

On the other hand, with respect to the factorial structure and its internal consistency (reliability), it is worth clarifying that the present work implies only a first exploratory approach in the task of adapting the instrument to different populations or regions within the local setting. In this sense, future research should continue to investigate the psychometric properties of the SMEQ in different regions and populations in Colombia.

It is necessary to add that the validation of psychometric tests, in the area of mental health, contribute to the monitoring and/or diagnosis of diseases, in order to propose treatments that contribute to the integrity of individuals in Colombia.

Limitations: In the first place, it can be observed that the results of the study refer mostly to the Medellin-Antioquia area (69%) leaving a large part of the Colombian territory out of the sample. With regard to the population studied, the distribution by sex had a large participation of women over men (71.6% female and 28.4% male), a factor that could alter the results. At the same time, more studies could be conducted to strengthen the validity of the instrument, for example, by relating this questionnaire to other factors such as self-esteem, loss of attention or FoMO (Fear of Missing Out).



Conclusions

The psychometric properties of the Digital Social Network Involvement Questionnaire (SMEQ) showed adequate values, results that made possible its administration in the young population of Colombia (Age: M= 28 years). In this sense, the results of the present work provide evidence about the adequacy of the instrument with respect to its reliability and internal consistency, presenting in this sense, five items conceptually equivalent to those originally proposed by the authors Przybylski et al. (2013).

Regarding the confirmatory factor analysis, the results allow us to observe an adequate fit (CFI= .99; SRMR= .038). While, in its internal consistency, both the Ordinal Alpha and McDonald's Omega also reached adequate values ($\alpha = .85$; $\omega = .90$).

Finally, we can affirm that having the possibility of having valid and reliable tools for the analysis and evaluation of involvement in digital social networks constitutes the overcoming of challenges and obstacles that currently require attention in our context, as well as at regional and global level. Obstacles that currently need to be addressed to contribute and strengthen analysis and studies related to a contemporary phenomenon on the rise: digital interaction, seen from a clinical and social perspective to understand the phenomenon of social networks and their impact on mental health and psychological well-being.

Conflicts of interest

The investigators declare that there is no actual or potential interest (institutional, economic or personal) that could result in bias in the publication of this work.

RESEARCH ARTICLE

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