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Translation, validity evidence and reliability of the Brazilian Version of the Fear of Missing Out Scale

Tradução, evidências de validade e fiabilidade da versão brasileira Da Fear of Missing Out Scale

Traducción, evidencias de validez y fiabilidad de la versión brasileña de la Fear of Missing Out Scale

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Abstract

The Fear of Missing Out (FoMO) phenomenon, characterized by the distress caused by the perception of being excluded or not participating in activities in which peers are involved, is examined in this study. The FoMO Scale, comprising 10 items, is employed to measure the levels of this sentiment. The research aimed to translate, adapt, and validate the Fear of Missing Out Scale for the Brazilian context. To achieve this objective, the study followed two distinct methodological stages: the first pertained to translation and adaptation, while the second encompassed the scale's application, accompanied by an analysis of content and construct validity evidence. In the initial phase, the process involved the translation itself, followed by back-translation and subsequent evaluation by experts and the target audience. Moving on to the second stage, an exploratory factor analysis (EFA) was conducted using the Factor software, involving 646 participants aged between 18 and 63 years (M = 32.60; SD = 11.84). The exploratory factor analysis revealed the presence of a single dimension in the scale, in line with the original structure. Furthermore, the study provided two forms of valid evidence for the instrument, considering its novel application in the Brazilian context. The ability to utilize this scale in this scenario opens the door to cross-cultural studies addressing this theme.
Keywords: Fear of Missing Out; psychometric properties; factor analysis

Resumo

O Fear of Missing Out (FoMO), descrito como um desconforto causado pela sensação de estar excluído ou não participar de atividades nas quais os colegas estejam envolvidos, é analisado neste estudo. A Escala FoMO, composta por 10 itens, é empregada para mensurar os níveis desse sentimento. O objetivo da pesquisa consistiu em realizar a tradução, adaptação e validação da Fear of Missing Out Scale para o cenário brasileiro. Para alcançar esse propósito, o estudo seguiu duas etapas metodológicas distintas: a primeira diz respeito à tradução e adaptação, enquanto a segunda abrangeu a aplicação da escala, acompanhada da análise das evidências de validade de conteúdo e construto. Na primeira fase, o processo compreendeu a tradução propriamente dita, seguida pela tradução reversa e subsequente avaliação por parte de especialistas e do público-alvo. Já na segunda etapa, conduziu-se uma análise fatorial exploratória (AFE) utilizando o

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software Factor, que envolveu 646 participantes, com idades entre 18 e 63 anos (*M* = 32,60; *DP* = 11,84). A análise fatorial exploratória apontou para a presença de uma única dimensão na escala, em concordância com a estrutura original da mesma. Além disso, o estudo apresentou duas formas de evidência de validade para o instrumento, considerando sua aplicação inédita no contexto brasileiro. A possibilidade de utilizar a escala nesse cenário possibilita a realização de estudos transculturais abordando esse tema.

Palavras-chave: Fear of Missing Out; propriedades psicométricas; análise fatorial

Resumen

Se examina en este estudio el fenómeno del Fear of Missing Out (FoMO), caracterizado por la angustia causada por la percepción de estar excluido o no participar en actividades en las que están involucrados los compañeros. Se utiliza la Escala FoMO, compuesta por 10 ítems, para medir los niveles de este sentimiento. La investigación tuvo como objetivo traducir, adaptar y validar la Escala Fear of Missing Out para el contexto brasileño. Para lograr este objetivo, el estudio siguió dos etapas metodológicas distintas: la primera se refirió a la traducción y adaptación, mientras que la segunda abarcó la aplicación de la escala, acompañada de un análisis de la validez de contenido y de constructo. En la fase inicial, el proceso involucró la traducción en sí, seguida de la retrotraducción y la evaluación posterior por parte de expertos y del público objetivo. Avanzando a la segunda etapa, se llevó a cabo un análisis factorial exploratorio (AFE) utilizando el software Factor, que incluyó a 646 participantes de entre 18 y 63 años (*M* = 32.60; *DE* = 11.84). El análisis factorial exploratorio reveló la presencia de una única dimensión en la escala, en línea con la estructura original. Además, el estudio proporcionó dos formas de evidencia de validez para el instrumento, considerando su novedosa aplicación en el contexto brasileño. La capacidad de utilizar esta escala en este escenario abre la puerta a estudios transculturales que abordan este tema.

Palabras clave: Fear of Missing Out; propiedades psicométricas; análisis factorial

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With the increasing ubiquity of internet connectivity, the phenomenon known as Fear of Missing Out (FoMO) has become more prevalent among individuals (Przybylski et al., 2013). FoMO has been described as a discomforting sensation of being excluded from something that one's peers are engaged in, knowledgeable about, or in possession of something considered superior to what the individual themselves are doing, know, or have (Przybylski et al., 2013). Another definition presented in the literature by Przybylski et al. (2013) posits that FoMO can be defined as an apprehension that others may be having gratifying experiences from which the subject is absent, characterized by the desire to remain constantly connected with what others are doing. In a more recent definition, it was characterized as a constant desire to track the exciting and illustrious lives of others through the internet and a persistent state of anxiety about it (Tanhan et al., 2022). In both definitions, individuals experiencing FoMO reported negative sentiments when lacking omnipresent contact with others and their activities.

With the surge in social media usage, primarily linked to smartphones, there has been a proliferation of FoMO, leading to further investigations into the phenomenon. One proposition posited in prior studies is that FoMO may act as a mediator, linking deficits

in psychological needs (relationship) and media engagement. The study by Casale and Fioravanti (2015) demonstrated that individuals with a lower degree of satisfaction with basic needs (relationship – connection with others) are more inclined to interact on social networks. Studies indicate that the escalation of FoMO is positively correlated with social media intensity but negatively associated with social connection (Roberts & David, 2020). In this context, FoMO elucidates the inclination of individuals with chronic deficits in satisfying psychological relationship needs to seek constant updates through communication applications (chats), even in inappropriate situations such as while driving (Alt, 2015; Przybylski et al., 2013). The pressure to be available around the clock during the day leads individuals to experience a heightened level of anxiety when network access is restricted, as well as stress when they do not respond immediately to requests and messages (Skierkowski & Wood, 2012).

FoMO was initially conceptualized using the Self-Determination Theory (Ryan & Deci, 2000), which is founded on the idea that social relationships can boost intrinsic motivation, thereby promoting positive mental health. Researchers applied the Self-Determination Theory to FoMO, suggesting that it is a negative emotional state resulting from the lack of satisfaction of social relationship needs. FoMO can manifest as an episodic sensation, arising during a conversation, or as a long-term disposition, leading to feelings of social inferiority, loneliness, or intense anger. Currently, individuals are exposed to a vast amount of information about the activities of others, which can generate uncertainties about whether they are doing enough or if they are on the right path in their lives.

The need for interpersonal connection is a prominent aspect of human evolutionary history, constituting one of the emotional facets linked to psychological human needs. The Self-Determination Theory proposes that mental well-being is based on three fundamental needs: competence, the ability to effectively navigate the world; autonomy, personal initiative; and relatedness, proximity or connection with others (Przybylski et al., 2013).

The relationship between individuals represents a psychological dimension, involving the establishment of emotional bonds with others. This connection between subjects reflects the desire to be emotionally connected and interpersonally engaged in warm relationships with one another (Milyavskaya & Koestner, 2011; Reeve, 2006). This psychological need is a vital motivational construct, as individuals experiencing supportive interpersonal relationships exhibit greater stress resilience and fewer coping difficulties. Conversely, relationships lacking this form of validation do not satisfy human needs for connection. Furthermore, the quality of the relationship is a pivotal factor in human relations, as a life devoid of intimate social ties and quality relationships is associated with feelings such as sadness, jealousy, and loneliness (Reeve, 2006).

Due to the increasing observations of social media usage and the need for connection, a scale for assessing FoMO was developed in 2013. In the study, Przybylski et al. (2013) created the Fear of Missing Out Scale, consisting of 10 items for measuring the Fear of Missing Out. The items are rated on a Likert scale ranging from 01 (Not true for me) to 05 (Extremely true for me). The results of the original instrument development study suggested that younger individuals, especially young men, tend to have higher levels of FoMO. Low satisfaction of basic psychological needs (competence, autonomy, relatedness) is associated with higher levels of FoMO; FoMO is negatively associated with psychological well-being, including overall mood and life satisfaction; FoMO is associated with demographic characteristics, levels of satisfaction of psychological needs, psychological well-being, and specific behaviors related to social media use, including Facebook usage and behavior during classes (Przybylski et al., 2013).

The Fear of Missing Out Scale, originally presented in English, is a scale with appropriate psychometric qualities. As for translations and adaptations of the Fear of Missing Out Scale that has been carried out around the world, we have versions in Turkish (Gökler et al., 2016), Spanish (Gil et al., 2015), Arabic (Al-Menayes, 2016), Italian (Casale & Fioravanti, 2020), and English (Perrone, 2013; for American adolescents).

Validity ensures that an instrument precisely measures what it intends to measure and is divided into various types (Pasquali, 2009). In this study, evidence of content and internal structure validity of the instrument was used, which constitutes a direct way of verifying the hypothesis of the legitimacy of the behavioral representation of latent traits (Pasquali, 2009). The translation and adaptation of this scale for the Brazilian context allows for cross-cultural studies using this instrument.

To seek evidence of validity regarding the internal structure of the instrument, an Exploratory Factor Analysis (EFA) was conducted in this version for use in Brazil. Versions of the FoMO scale for other countries were also tested with EFA. For example, the Arabic version showed a two-factor structure with Cronbach's alpha values of .82 and .72, while studies with versions for Turkish, Spanish, and English adolescents were explained by a single factor, corroborating the structure of the original scale, with Cronbach's alpha values of .81, .85, and .93, respectively. The study aimed to translate, and adapt the FoMO scale for Brazilian Portuguese, and obtain validity evidence for its use in Brazil.

Method

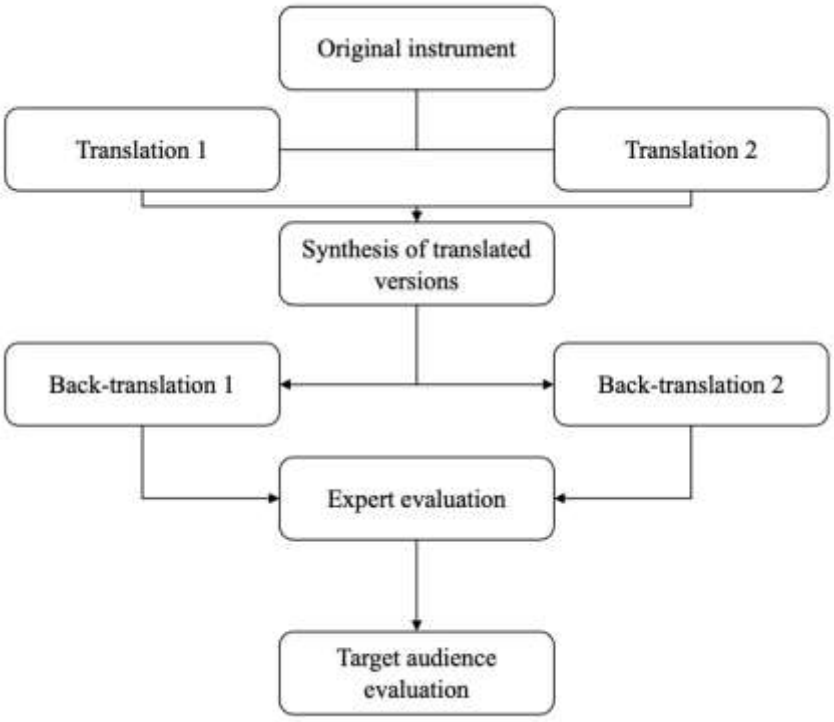
To accomplish the objectives established in this research, two methodological stages were employed: the first consisted of the translation and adaptation of the FoMO scale, while the second involved the application of the scale to the target audience and data analysis. The project adhered to all ethical guidelines and was approved by the Research Ethics Committee under the number 5,693,731.

Translation and Adaptation of FoMO

In the initial stage, regarding the translation and adaptation of the instrument, the methodology proposed by Borsa et al. (2012) was adopted, as illustrated in Figure 1, encompassing the following phases: Translation, Synthesis of Translated Versions, Back-Translation, Expert Evaluation, and Target Audience Evaluation.

Figure 1

Steps of the instrument translation and adaptation method



Translation

Two independent translations of the original instrument into Portuguese were carried out. This process involved two distinct professionals. The first translation was conducted by a psychologist who specialized in human development, with no prior knowledge of the underlying concepts of the instrument. The second translation was performed by a psychologist with academic training in Germany, possessing extensive proficiency in the English language, and also kept uninformed about the concept. Both translators, as recommended by Borsa et al. (2012), were bilingual, fluent in the language of the original instrument, and native speakers of the target language.

Synthesis of Translated Versions

An initial assessment of both translated versions was conducted based on four aspects: 1) semantic equivalence - to identify possible grammatical errors in translation, and word connotations, and ensure a singular meaning for each item; 2) idiomatic equivalence - to confirm that the challenging translation items from the original instrument were adapted with equivalent expressions without altering the cultural meaning of each item; 3) experiential equivalence - to verify if the instrument items apply to the target culture and, if necessary, replace them with equivalent items; 4) conceptual equivalence - to ensure that specific terms or expressions were accurately translated and evaluate the same aspect across different cultures. At the end of this stage, a single version of the instrument was obtained by synthesizing the two translated and adapted versions.

Back-Translation

Two back-translations into English were produced for the translated versions of the instrument in Portuguese. Back-translation involves translating the synthesized version of the instrument back into the original language to assess the degree of correspondence between the translated version and the content of the original items, as

proposed by the original instrument. This stage was conducted by two different translators than those who performed the initial translation. Both back-translations were carried out by professionals fluent in the original language of the instrument. Subsequently, a third professional, a foreign language teacher, and a native speaker of the original language of the instrument evaluated the fidelity of the back-translated versions.

Expert Evaluation

This stage aimed to assess the content of the scale with the assistance of experts in the field of psychological assessment or with specific knowledge of the construct. Three mental health professionals referred to as judges, including two psychologists and one psychiatrist, were invited to critically analyze the structure, instructions, and items of the instrument, with an emphasis on language clarity. The judges were selected based on criteria including holding a Ph.D. and having at least five years of experience in the field. Throughout the process, all judges received a brief introduction to the concept of Fear of Missing Out. The Content Validity Coefficient (CVC) was then calculated, and items with a CVC below 0.8 were reanalyzed by the researchers, and necessary modifications were made to better meet the needs of the instrument, resulting in the final version of the instrument that informed the second stage of the study, consisting of the large-scale application.

Target Audience Evaluation (Semantic Analysis)

A preliminary application of the instrument was conducted on a sample of four individuals representing the intended target audience. Four participants were selected, including one adolescent, two adults, and one elderly individual, three female and one male. The ages of the participants ranged from 18 to 62 years, residing in different states of Brazil, ensuring representation from the Northeast, South, and Southeast regions. This stage aimed to verify the comprehensibility of the items, instructions, and response scales for the target audience. It was considered essential to evaluate the instrument among individuals from different regions to ensure that, once validated, the instrument could be applied to diverse populations and regions of the country.

Application of FoMO in the Target Audience and Data Analysis

To investigate evidence of construct validity, data collection was conducted through a digital platform, obtaining a non-probabilistic convenience sample. The data were analyzed using the Exploratory Factor Analysis (EFA) proposed by Lorenzo-Seva and Ferrando (2019), utilizing the statistical software Factor to fulfill the construct validation of the FoMO scale.

Participants

Data collection was carried out through the digital platform REDCap (Research Electronic Data Capture). The collected sample was of the non-probabilistic convenience type, primarily through social media, aiming to reach a larger number of participants in a short period. Inclusion criteria for this research were: internet access; age between 18 and 65 years; and literacy. Thus, the total sample comprised 646 participants. Within this group, the majority were female (76.4 %), had completed higher education (59.9 %), and were single (59.3 %), with a mean age of 29 years (SD = 11.77), ranging from 18 to 63 years.

Data Analysis

Exploratory Factor Analysis (EFA) has been widely employed as a statistical procedure in the development, evaluation, and refinement of psychological instruments (Floyd & Widaman, 1995). Its purpose lies in confirming or refuting the factorial structure of a given instrument (Brown, 2006), aiming to unveil the latent constructs explored by the instrument through the analysis of covariance between the items.

In this context, to verify the consistency of the obtained data, the method of parallel analysis was employed using the statistical program Factor (version 10.10.03). This statistical method involves the random construction of a hypothetical set of correlation matrices of variables, based on the same dimensionality as the real data set (the same number of variables and subjects) (Laros, 2004). The hypothetical matrix is subjected to factorization hundreds or thousands of times (depending on the robustness chosen by the researcher), and the average of the resulting eigenvalues from these simulations is calculated. The eigenvalues of the real data are then compared (paired) with the random eigenvalues, matching the first real eigenvalue with the first random eigenvalue, the second with the second, and so on. The retention of the number of factors in the real data is related to those that have eigenvalues greater than 1 and exceed the corresponding eigenvalues obtained from the random data (O'Connor, 2000).

The choice of the parallel analysis method was motivated by its relevance as one of the most used models for the analysis of polytomous items, particularly suitable for Likert-format scales, resulting in more accurate results (Timmerman & Lorenzo-Seva, 2011).

Results

In the initial stage of FoMO translation and adaptation, two versions of the scale were generated in Portuguese. Due to the similarity between the translated versions, they were combined, resulting in a single instrument. The subsequent synthesis of the translated versions considered semantic, idiomatic, experiential, and conceptual equivalence, confirming that the acceptable equivalence standards proposed in the literature were achieved.

Based on the two back-translations, a third professional, a native English speaker, and a foreign language teacher, assessed that both back-translated versions exhibited a more formal language compared to the original instrument, but this did not compromise the consistency of the scale. Therefore, no changes were deemed necessary in the final instrument after the results of the back-translations, as shown in Table 1.

The evaluation by experts revealed that all judges strongly agreed with the clarity of the instrument's instructions. The structure and formatting of the scale were considered suitable for the instrument's purpose. The description in the scale was judged to be compatible and sufficient for responding to the items, and the items themselves were considered representative of the assessed construct. Additionally, there was 100% agreement on the comprehensibility of the items, indicating that the instrument is accessible to both adults and the elderly.

The content validity coefficient of each item was analyzed, and seven out of the 10 items had a value of .80. Specifically, the judges identified that item 05 showed inconsistency in idiomatic and experiential equivalence. The expression "entenda meus amigos em piadas" (understand my friends in jokes) was considered uncommon in Brazilian culture, raising the possibility of confusion during the scale's application. Additionally, 66.7 % of the experts noted similarities between the statements of items 01 and 02, suggesting a reflection on the intended distinctions of each item to avoid overlap.

Regarding the evaluation by the target audience, participants rated the instrument as easy to understand, both in terms of instructions and items. However, 75 % of the sample expressed doubts and indicated a lack of clarity in item 05, while 25 % pointed out similarities between items 01 and 02.

Based on the judges' considerations and participants' observations, modifications were made to items 01, 02, and 05, as detailed in Table 1. The expression in item 05, originally formulated as "entenda meus amigos em piadas" (understand my friends in-jokes), was changed to "entenda meus amigos quando fazem piadas e/ou brincadeiras" (understand my friends when they make jokes and/or play), to achieve greater idiomatic and experiential equivalence, expanding the meaning of the expression and promoting a more effective adaptation to the Brazilian cultural context. Item 01, originally formulated as "Eu temo que os outros tenham experiências mais recompensadoras do que eu" (I fear that others have more rewarding experiences than me), was reformulated to "Eu temo que as outras pessoas tenham experiências mais recompensadoras do que eu" (I fear that other people have more rewarding experiences than me), aiming to provide greater clarity. Additionally, items 01 and 02 were reordered, as this reorganization tends to facilitate interpretation and assimilation by the respondents. With the reversal of the presentation order, item 2 "amigos" (friends) precedes item 1 "outras pessoas" (other people), maintaining the original structure of the instrument.

In the second stage, which involved the application of FoMO and data analysis, a total of 646 participants ranging in age from 18 to 63 years (M = 32.60; SD = 11.84) were included in the study. Following data collection, Exploratory Factor Analyses were conducted. The use of the Optimal Implementation of Parallel Analysis method (Timmerman & Lorenzo-Seva, 2011) indicated that the most representative solution for the data consists of a single factor (Kaiser-Meyer-Olkin [KMO] = 0.81942; Cronbach's Alpha [α = .802]; McDonald's Omega [w = .792]; Bartlett's Sphericity Test = 2665.1; df = 45; p < .001). The Mean of Item Residual Absolute Loadings (MIREAL) index had a value of .269. As pointed out by Ferrando and Lorenzo-Seva (2018), MIREAL values below 0.300 indicate data unidimensionality. Parallel analysis also supported the presence of one factor as the most representative of the data. The factor indices are presented in Table 2.

Table 1

Presentation of the results of the instrument translations

Original Instrument	Synthesis of translated versions	Back-translation 1	Back-translation 2
01. I fear others have more rewarding experiences than me.	01. Eu temo que os outros tenham experiências mais recompensadoras do que eu.	01. I am afraid that others have more rewarding experiences than I do.	01. I fear that others have more rewarding experiences than I do.
02. I fear my friends have more rewarding experiences than me.	02. Eu temo que meus amigos tenham experiências mais recompensadoras do que eu.	02. I am afraid that my friends have more rewarding experiences than I do.	02. I fear that my friends have more rewarding experiences than I do.
03. I get worried when I find out my friends are having fun without me.	03. Eu fico preocupado(a) quando descubro que meus amigos estão se divertindo sem mim.	03. I get worried when I found out that my friends are having fun without me.	03. I get worried when I find out that my friends are having fun without me.
04. I get anxious when I don't know what my friends are up to.	04. Fico ansioso(a) quando não sei o que meus amigos estão fazendo.	04. I get anxious when I do not know what my friends are doing.	04. I get anxious when I do not know what my friends are doing.
05. It is important that I understand my friends "in jokes".	05. É importante que eu entenda meus amigos "em piadas".	05. It is important that I understand my friends "on jokes".	05. It is important that I understand my friends "in jokes".
06. Sometimes, I wonder if I spend too much time keeping up with what is going on.	06. Às vezes, me pergunto se passo muito tempo acompanhando/seguindo o que está acontecendo.	06. Sometimes, I wonder if I spend a lot of time following what is happening.	06. Sometimes, I wonder if I spend a lot of time following what is happening.
07. It bothers me when I miss an opportunity to meet up with friends.	07. Me sinto incomodado(a) quando perco uma oportunidade de me encontrar com amigos.	07. I feel uncomfortable when I miss an opportunity of meeting my friends.	07. I feel uncomfortable when I miss an opportunity to meet friends.
08. When I have a good time it is important for me to share the details online (e.g. updating status).	08. Quando me divirto, acho importante compartilhar os detalhes on-line (por exemplo, atualizar status).	08. When I have fun, I find it important to share the details online (for example, updating status).	08. When I have fun, I find it important to share the details online (for example, update status).
09. When I miss out on a planned get-together it bothers me.	09. Me sinto incomodado(a) quando eu não compareço a um encontro planejado.	09. I feel uncomfortable when I do not attend at a scheduled event.	09. I feel uncomfortable when I do not attend a planned meeting.
10. When I go on vacation, I continue to keep tabs on what my friends are doing.	10. Quando saio de férias, continuo acompanhando o que meus amigos estão fazendo.	10. When I go on vacation, I keep track of what my friends are doing.	10. When I go on vacation, I keep track of what my friends are doing.

Table 2
Indices for evaluating the number of factors in the FoMO Scale

Factors	Percentage of explained variance in real data	Percentage of explained variance in random data (95 % CI)
1	41.0623*****	25.0456
2	15.5918	21.1716
3	12.4931	17.8938
4	8.6839	15.4413
5	7.1500	13.1316
6	6.2117	11.0197
7	5.5321	9.0979
8	2.3393	7.2941
9	0.9357	4.5963

***** The number of factors to be retained is one, as one factor from the actual data exhibits a higher percentage of explained variance compared to the random data.

When conducting the parallel analysis, simulated analyses are generated along with the variance means of the simulations. Consequently, it is suggested to determine the number of dimensions when the variance of the sample matrix (percentage of variance from real data) surpasses the mean of variances generated by the simulations (average percentage of random variance). In this context, it is observed that only one factor meets this criterion.

Table 3
Factor loadings of the items in the FoMO Scale

Item	Factor Loading
1	.747
2	.747
3	.670
4	.482
5	.473
6	.476
7	.488
8	.405
9	.462
10	.557

The factor loadings of the items are listed in Table 3, indicating that most items exhibited factor loadings above .40. Factor loadings represent the correlation between the indicator and the extracted factor, so factor loadings above .40 indicate a well-defined structure.

Discussion

The concept of Fear of Missing Out (FoMO) has gained prominence due to the increased use of social media. The literature defines FoMO as a set of negative feelings that arise when individuals feel disconnected from others' activities and what they are doing. This dynamic can lead to greater compulsive use of online applications, which has

adverse impacts on individuals' health (Wegmann et al., 2017). FoMO appears to be related to smartphone usage frequency and the severity of problematic smartphone use, mediating the relationship between anxiety and the frequency and severity of problematic smartphone use (Elhai et al., 2020).

It is important to note that, despite the existence of an internationally used scale to measure FoMO, as proposed by Przybylski et al. (2013), cross-cultural studies are necessary. A widely accepted and globally validated scale allows for an understanding of this phenomenon in the Brazilian context as well. The parallel analysis, by generating simulated analyses along with the variance means of these simulations, provides a recommended number of dimensions when the variance of the sample matrix (actual percentage of variance) exceeds the mean variances of the simulations (mean percentage of random variance). In this case, only one factor meets this criterion.

It is worth mentioning that FoMO is a phenomenon associated with the popularization of the internet, making it essential for cross-cultural studies. However, the scale developed by Przybylski et al. (2013) was adapted for the Brazilian context by Sette et al. (2020). Despite the existence of this international scale, the current study also demonstrated the need for adaptation and validation of the Brazilian reality, enriching the understanding of the phenomenon.

Globally, studies have linked FoMO to increased problematic use of social media, smartphones, anxiety, and depression (Elhai et al., 2020). The analysis of the adapted scale results demonstrated similarities with international studies. The versions in Arabic (Al-Menayes, 2016) and Italian (Casale & Fioravanti, 2020) exhibited a two-factor structure with Cronbach's alpha values of .82 and .72, respectively. In studies with Turkish (Gökler et al., 2016), Spanish (Gil et al., 2015), and English (Perrone, 2013) versions for adolescents, the unifactorial structure was corroborated, with Cronbach's alpha values of .81, .85, and .93, respectively.

FoMO is a relevant psychological concept in the digital age, already globally validated through various self-report scales and physiological monitoring (Elhai et al., 2020). In this sense, this study contributes to Brazilian science by adapting and validating an internationally used scale, allowing for a deeper understanding of this phenomenon in the country's context.

Despite its merits, some limitations were identified in the study. The FoMO scale was originally developed in the USA and UK, and the translation and adaptation sought to minimize this difference, but some difficulties persisted, leading to the adaptation of some items. Additionally, a scale with only 10 items may be considered limited in capturing the complexity of the FoMO phenomenon. However, exploratory factor analysis indicated that the scale items were highly correlated (.80), suggesting that the Brazilian version has good internal consistency.

Another Fear of Missing Out Scale was developed by Brazilian researchers in the study by Sette et al. (2020). In this study, researchers created a Brazilian scale in 2020. Four factors corresponding to different dimensions of FoMO in Online Social Media users were identified. Factor 1: Need to Belong refers to the fundamental human need to form and maintain stable relationships. Factor 2: Need for Popularity is related to the internal desire for peer approval and the fear of not being recognized, as well as behavior in OSM reinforced by positive feedback from peers. Factor 3: Anxiety is related to the withdrawal symptoms and cravings that a person with FoMO tends to exhibit when they cannot use the internet or smartphone. Factor 4: Addiction addresses the occupational, academic, or relational problems experienced due to excessive use of Online Social Media (Sette et al., 2020). Despite being an instrument with interesting psychometric data, it presents some limitations as there already exists a globally recognized scale for assessing

FoMO. Using a Brazilian scale may make it more challenging to compare the results of Brazilian studies with international studies that use a globally recognized scale. FoMO is a phenomenon that transcends cultural borders and can be experienced similarly in different parts of the world. Therefore, an internationally recognized scale may be sufficient to capture the nuances of FoMO in various contexts. Using an internationally recognized scale allows for the direct comparison of results from studies conducted in different countries. This facilitates the creation of an evidence base that can be used to understand the similarities and differences in FoMO experiences across cultures.

This study demonstrated that the adaptation of the Fear of Missing Out Scale for the Brazilian context shows initial validity for individuals aged 18 to 63 years. The results of the parallel analysis revealed a unifactorial structure, in line with other adaptations of the FoMO scale and the original version, consolidating the scale's suitability for use in Brazil.

Final Considerations

This study presents a translated and adapted version of the Fear of Missing Out scale. It is relevant to highlight that this scale investigates a construct that is still relatively new and highly contemporary, and whose development is intrinsically linked to cultural characteristics. Evidence points to the variation of effects related to the use of social communication tools among different countries, age groups, and purposes, which can create limitations in the application of scales in diverse cultural contexts.

The items in this scale have proven to be appropriate in terms of their understanding in the Brazilian context, requiring substantial modifications in only one of them. On the other hand, providing a freely available scale can become a valuable tool for researchers and professionals wishing to investigate this phenomenon of great importance.

Future studies have the potential to enrich the analysis of this phenomenon in specific groups, including clinical contexts, allowing for the examination of the effects of this relevant psychological construct in particular scenarios. Additionally, exploring the associations between Fear of Missing Out and other psychological aspects may contribute to a more comprehensive understanding of this complex phenomenon.

References

Al-Menayes, J. (2016). The fear of missing out scale: Validation of the Arabic version and correlation with social media addiction. *International Journal of Applied Psychology, 6*(2), 41-46.

Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, *49*, 111-119. https://doi.org/10.1016/j.chb.2015.02.057

Borsa, J. C.; Damásio, B. F.; Bandeira, D. R. (2012). Adaptação e validação de instrumentos psicológicos entre culturas: algumas considerações. *Paidéia, 22*(53), 423-432. https://doi.org/10.1590/s0103-863x2012000300014

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. The Guilford Press.

Casale, S., & Fioravanti, G. (2015). Satisfying needs through social networking sites: A pathway towards problematic Internet use for socially anxious people? *Addictive Behaviors Reports*, 1, 34-39. https://doi.org/10.1016/j.abrep.2015.03.008

Casale, S., & Fioravanti, G. (2020). Factor structure and psychometric properties of the Italian version of the fear of missing out scale in emerging adults and adolescents. *Addictive Behaviors*, 102, 106179. https://doi.org/10.1016/j.addbeh.2019.106179

Elhai, J. D., Yang, H., Fang, J., Bai, X., & Hall, B. J. (2020). Depression and anxiety symptoms are related to problematic smartphone use severity in Chinese young adults: Fear of missing out as a mediator. *Addictive behaviors*, *101*, 105962. https://doi.org/10.1016/j.addbeh.2019.04.020

Ferrando, P. J., & Lorenzo-Seva, U. (2018). Assessing the quality and appropriateness of factor solutions and factor score estimates in exploratory item factor analysis. *Educational and Psychological Measurement*, *78*, 762-780. https://doi.org/10.1177/0013164417719308

Floyd, F. & Widaman, K. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment*, *7*, 286-299. https://doi.org/10.1037/1040-3590.7.3.286

Gil, F., Del Valle, G., Oberst, U., & Chamarro, A. (2015). Nuevas tecnologías -¿Nuevas patologías? El smartphone y el fear of missing out. *Aloma: Revista de Psicologia, Ciències de l'Educació i de l'Esport*, *33*(2), 77-83. https://doi.org/10.51698/aloma.2015.33.2.77-83

Gökler, M., Aydın, R., Unal, E., & Metintas, S. (2016). Determining validity and reliability of Turkish version of Fear of Missing out Scale. *Anatolian Journal of Psychiatry*, *17*(1), 53. https://doi.org/10.5455/apd.195843

Laros, J. A. (2005). O uso da análise fatorial: algumas diretrizes para pesquisadores. *Análise fatorial para pesquisadores*, *1*, 145.

Lorenzo-Seva, U., & Ferrando, P. J. (2019). Robust Promin: a method for diagonally weighted factor rotation. *Liberabit: Revista Peruana de Psicología, 25*(1), 99-106. https://doi.org/10.24265/liberabit.2019.v25n1.08

Milyavskaya, M., & Koestner, R. (2011). Psychological needs, motivation, and well-being: A test of self-determination theory across multiple domains. *Personality and Individual Differences*, *50*(3), 387-391. https://doi.org/10.1016/j.paid.2010.10.029

O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instrumentation, and Computers*, *32*(3), 396-402. https://doi.org/10.3758/bf03200807

Pasquali, L. (2009). Psicometria. *Revista da Escola de Enfermagem da USP*, *43*(spe), 992-999. https://doi.org/10.1590/s0080-62342009000500002

Perrone, M. A. (2013). #FoMO: *establishing validity of the fear of missing out scale with an adolescent population*. Alfred University.

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, *29*, 1841-1848. https://doi.org/10.1016/j.chb.2013.02.014

Reeve, J. (2006). *Motivação e Emoção* (4ª ed.). LTC.

Roberts, J. A., & David, M. E. (2020). The social media party: Fear of missing out (FoMO), social media intensity, connection, and well-being. *International Journal of Human–Computer Interaction*, *36*(4), 386-392. https://doi.org/10.1080/10447318.2019.1646517

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78. https://doi.org/10.1037/0003-066x.55.1.68

Sette, C. P., Lima, N. R., Queluz, F. N., Ferrari, B. L., & Hauck, N. (2020). The online fear of missing out inventory (ON-FoMO): Development and validation of a new tool. *Journal of Technology in Behavioral Science, 5*(1), 20-29. https://doi.org/10.1007/s41347-019-00110-0

Skierkowski, D., & Wood, R. M. (2012). To text or not to text? The importance of text messaging among college-aged youth. *Computers in Human Behavior*, 28, 744-756. https://doi.org/10.1016/j.chb.2011.11.023

Tanhan, F., Özok, H. İ., & Tayiz, V. (2022). Fear of missing out (FoMO): A current review. *Psikiyatride Guncel Yaklasimlar*, *14*(1), 74-85.

Timmerman, M. E., & Lorenzo-Seva, U. (2011). Dimensionality Assessment of Ordered Polytomous Items with Parallel Analysis. *Psychological Methods*, *16*, 209-220. https://doi.org/10.1037/a0023353

Wegmann, E., Oberst, U., Stodt, B., & Brand, M. (2017). Online-specific fear of missing out and Internet-use expectancies contribute to symptoms of Internet-communication disorder. *Addictive Behaviors Reports*, *5*, 33-42. https://doi.org/10.1016/j.abrep.2017.04.001

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